

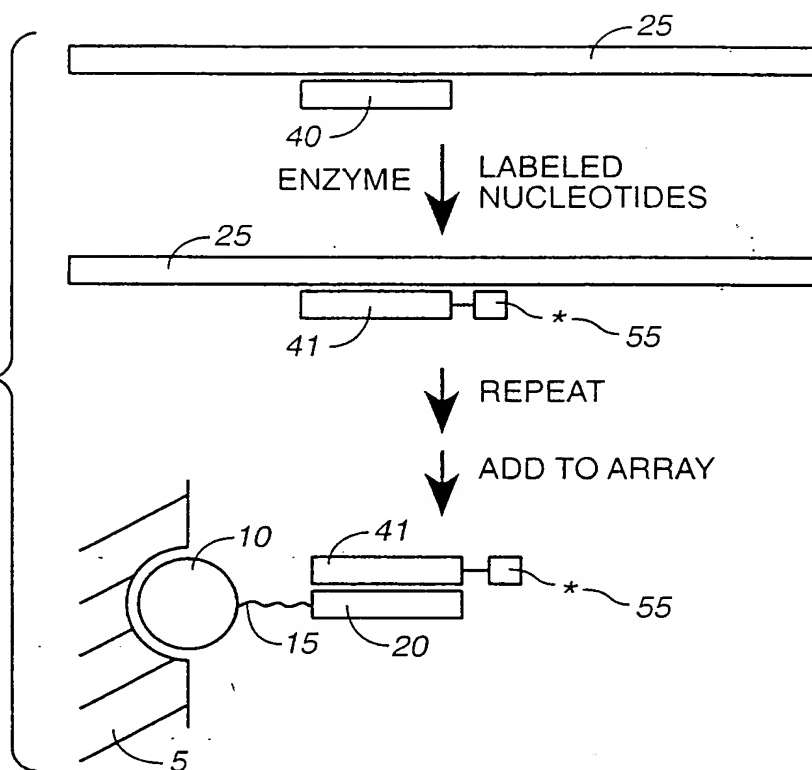
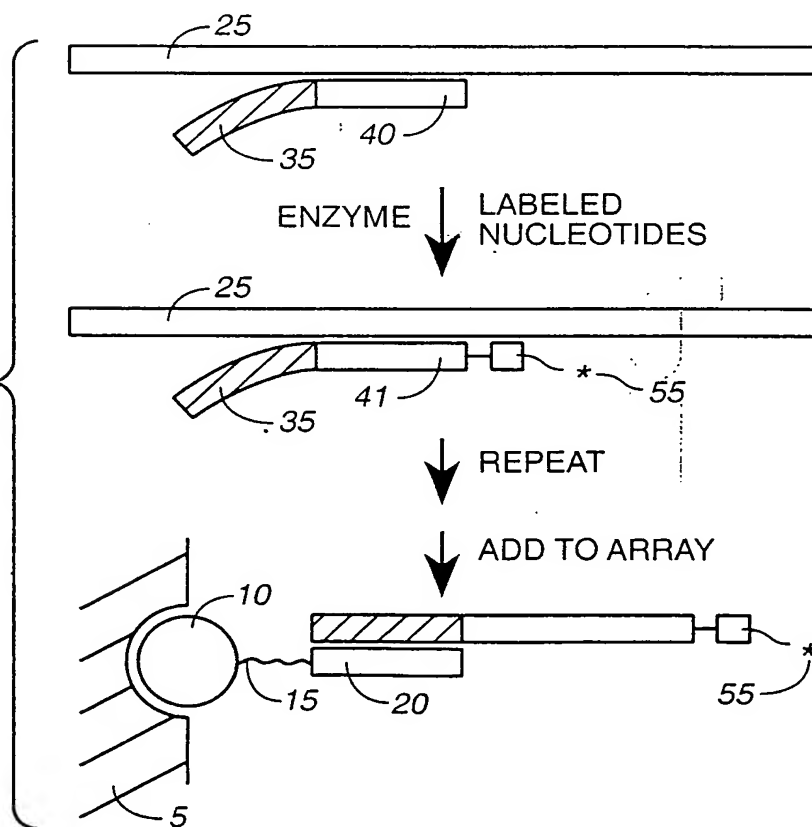
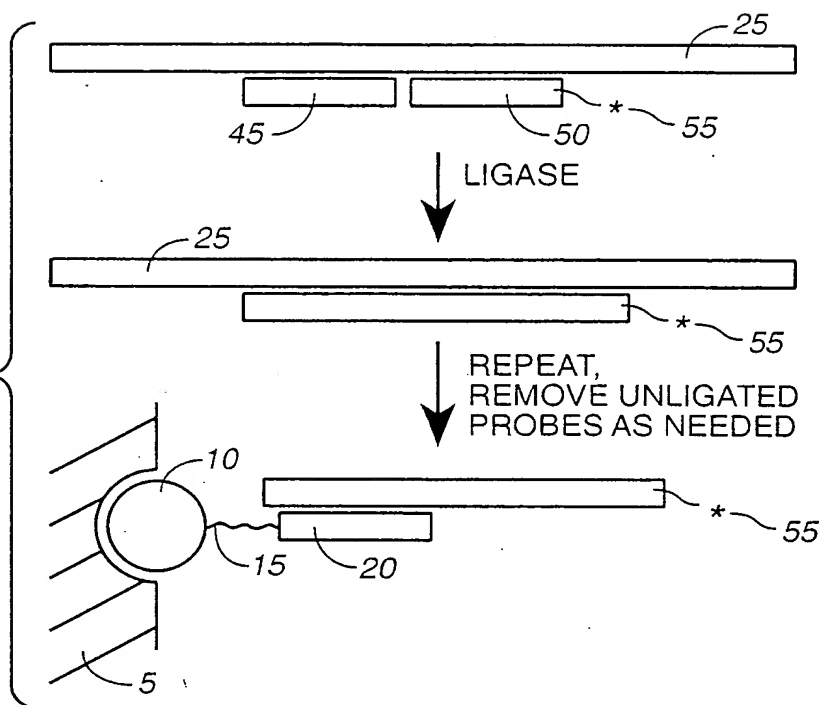
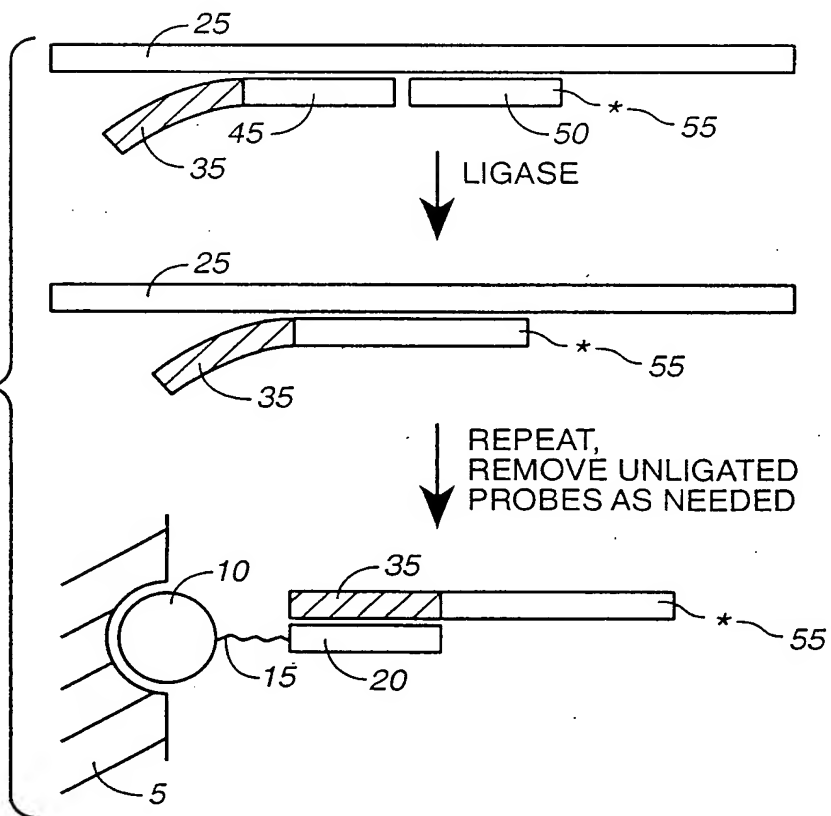
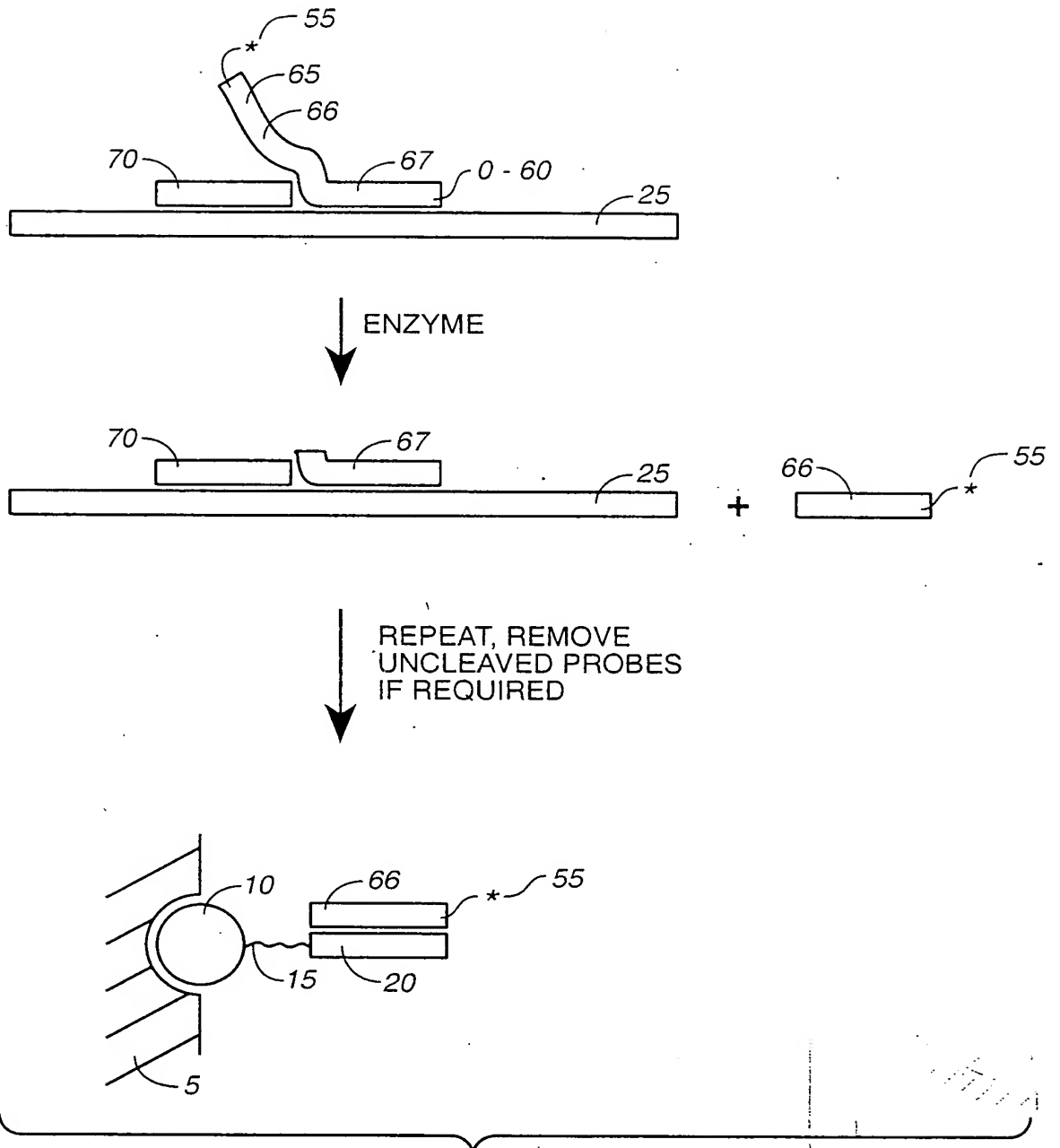
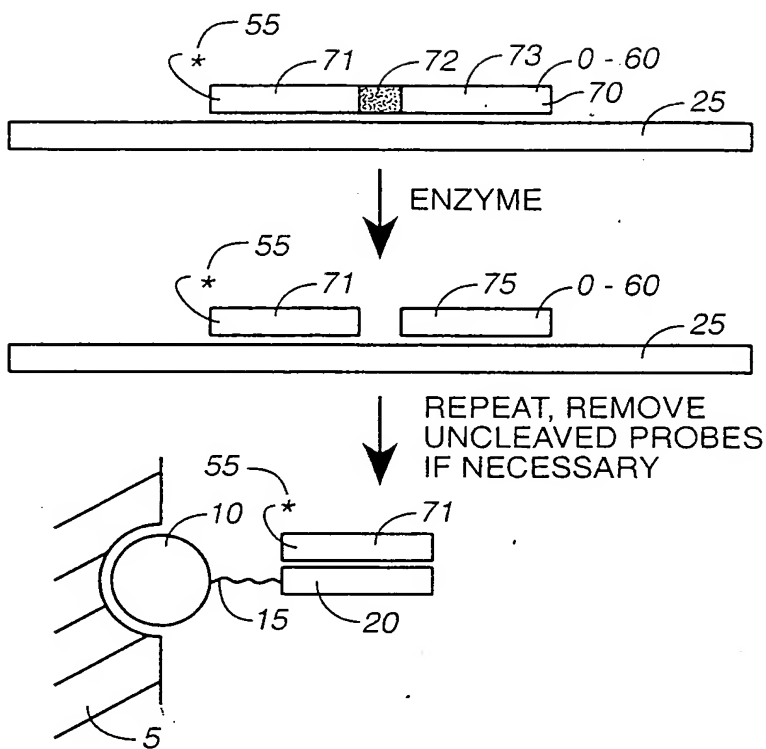
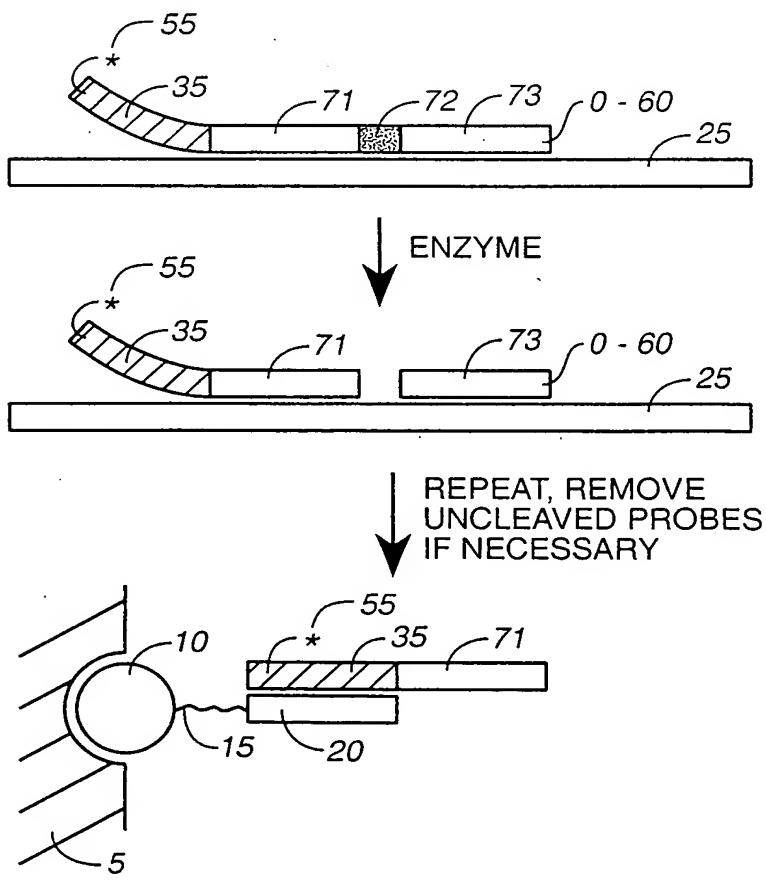
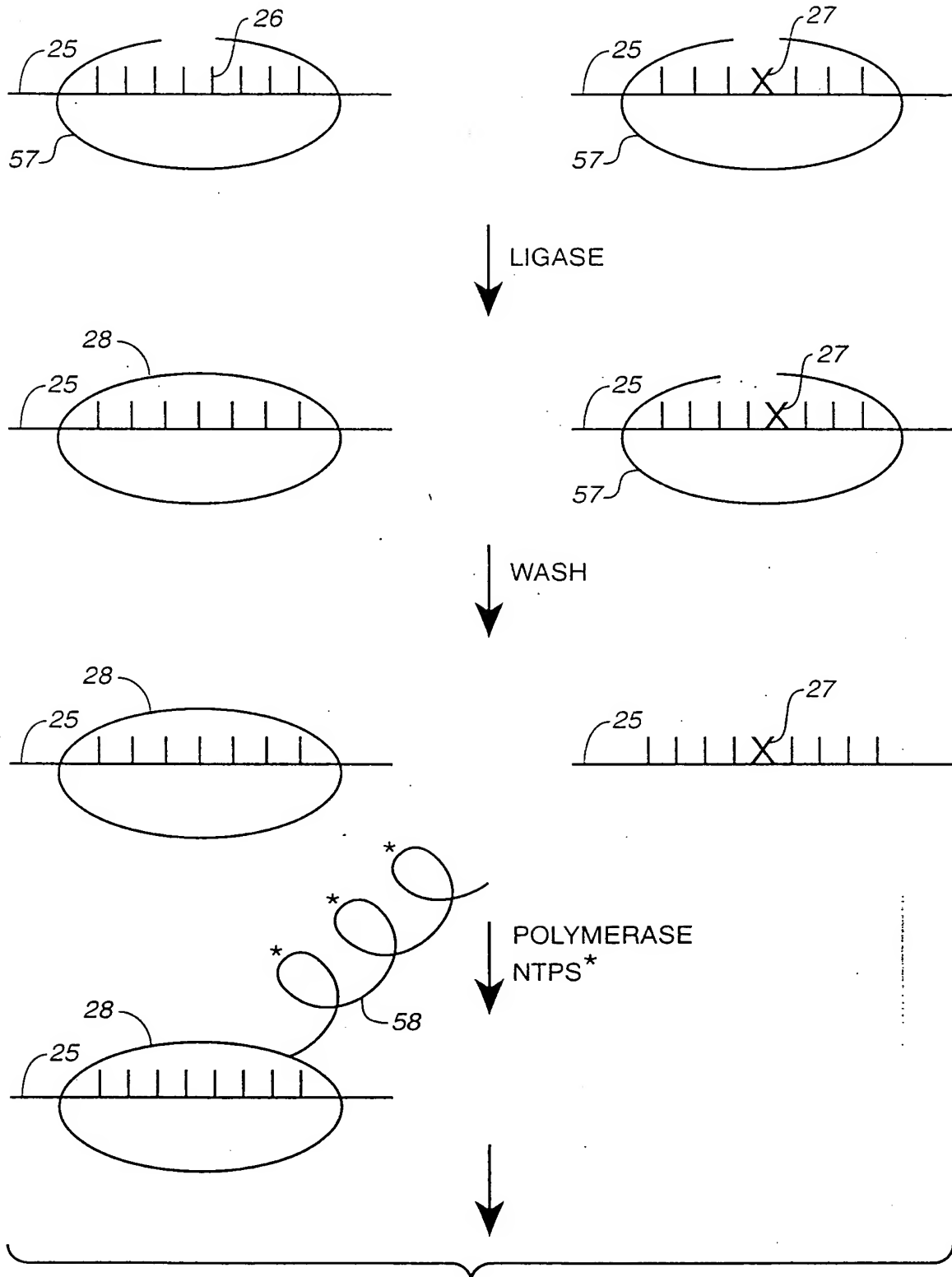
FIG._2A**FIG._2B**

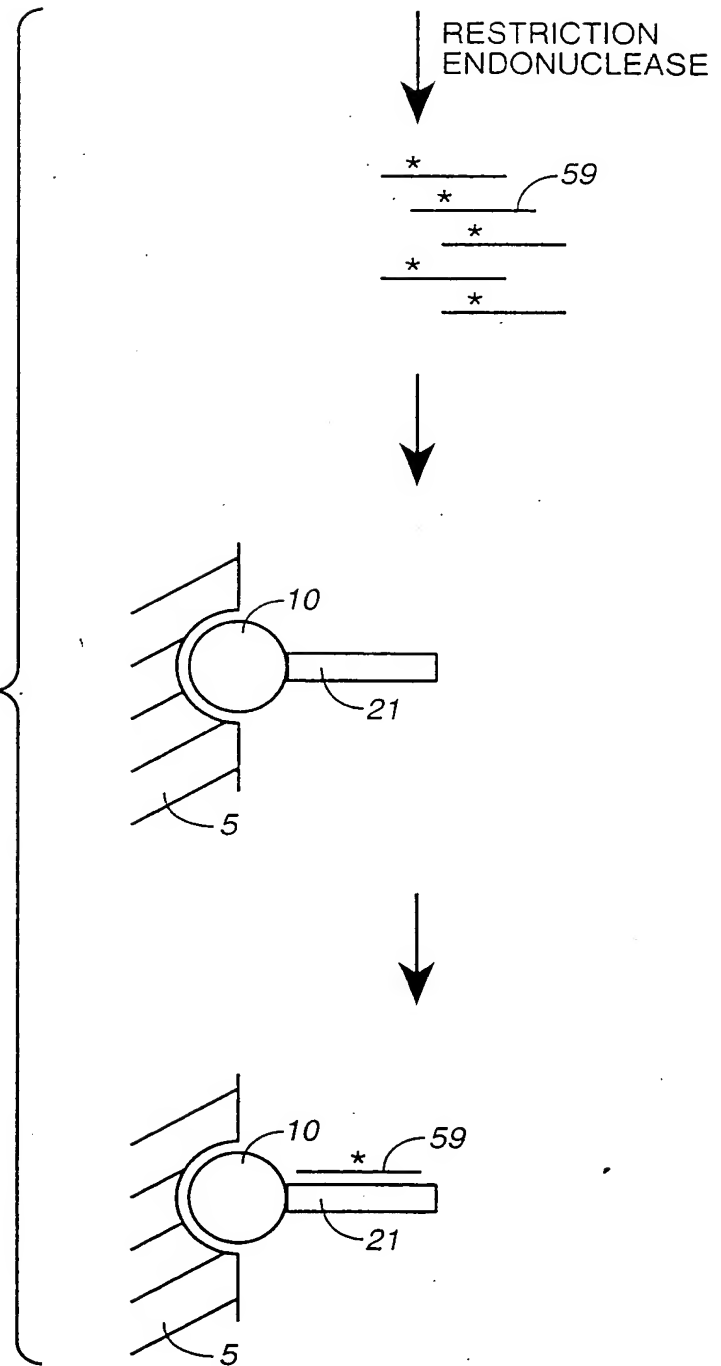
FIG._3A**FIG._3B**

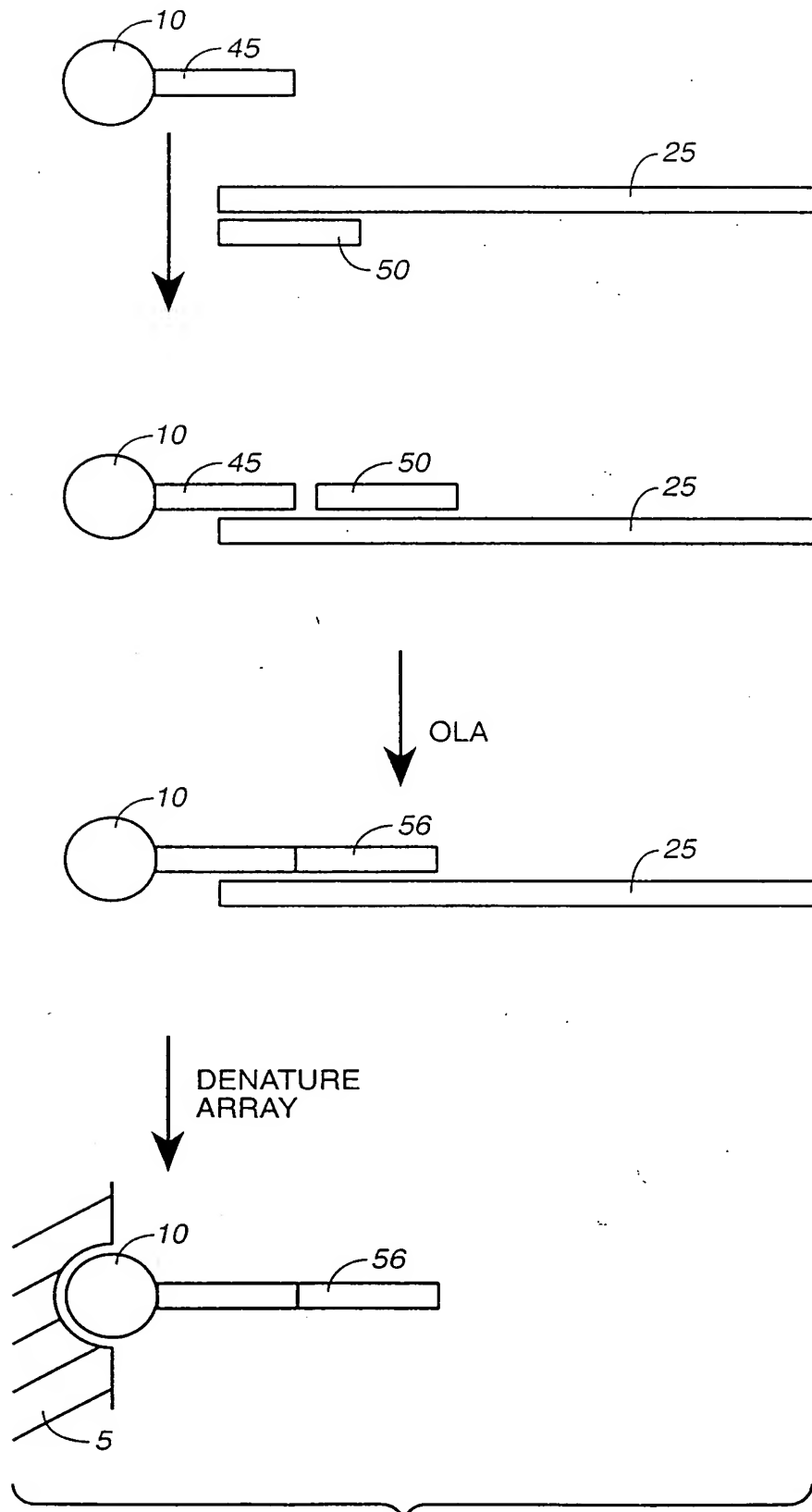
**FIG. 4**

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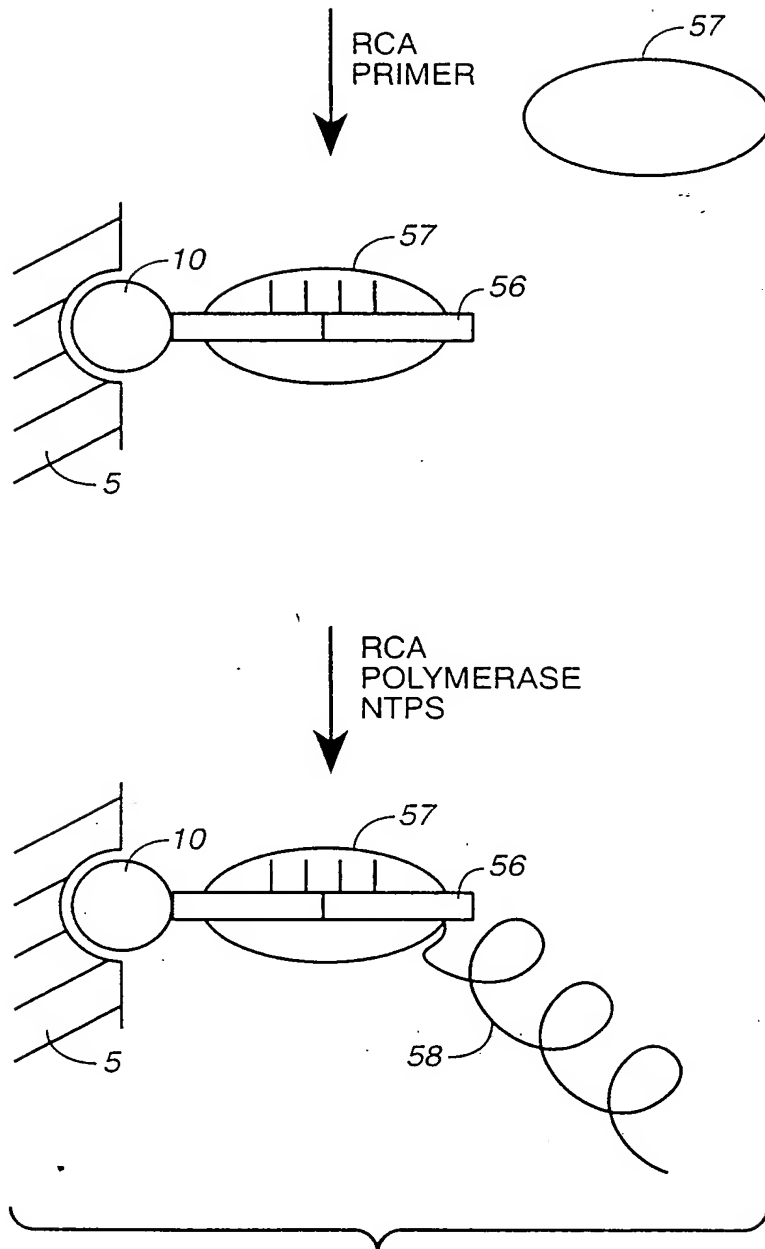
FIG. 5A**FIG. 5B**

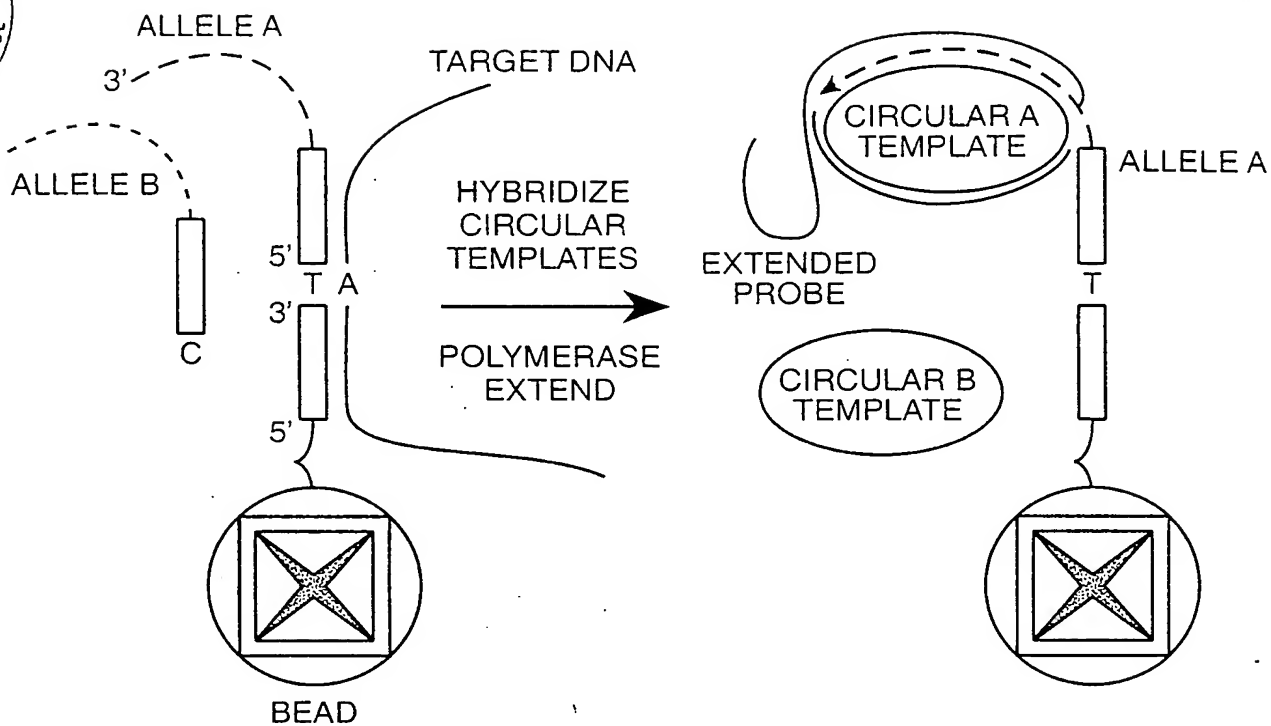
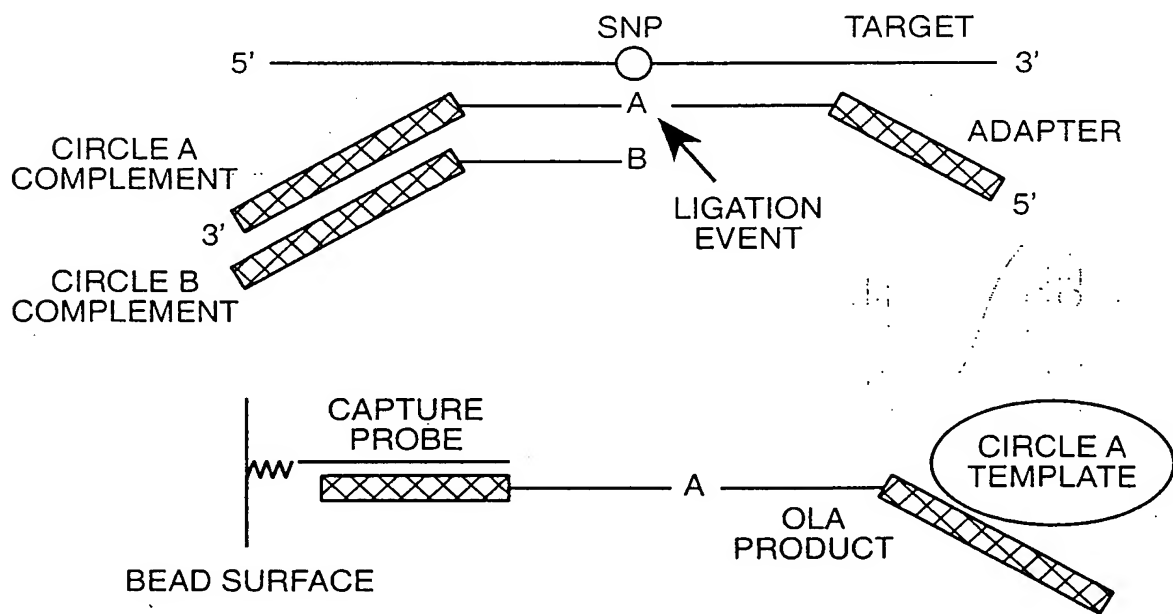
**FIG. 6A**

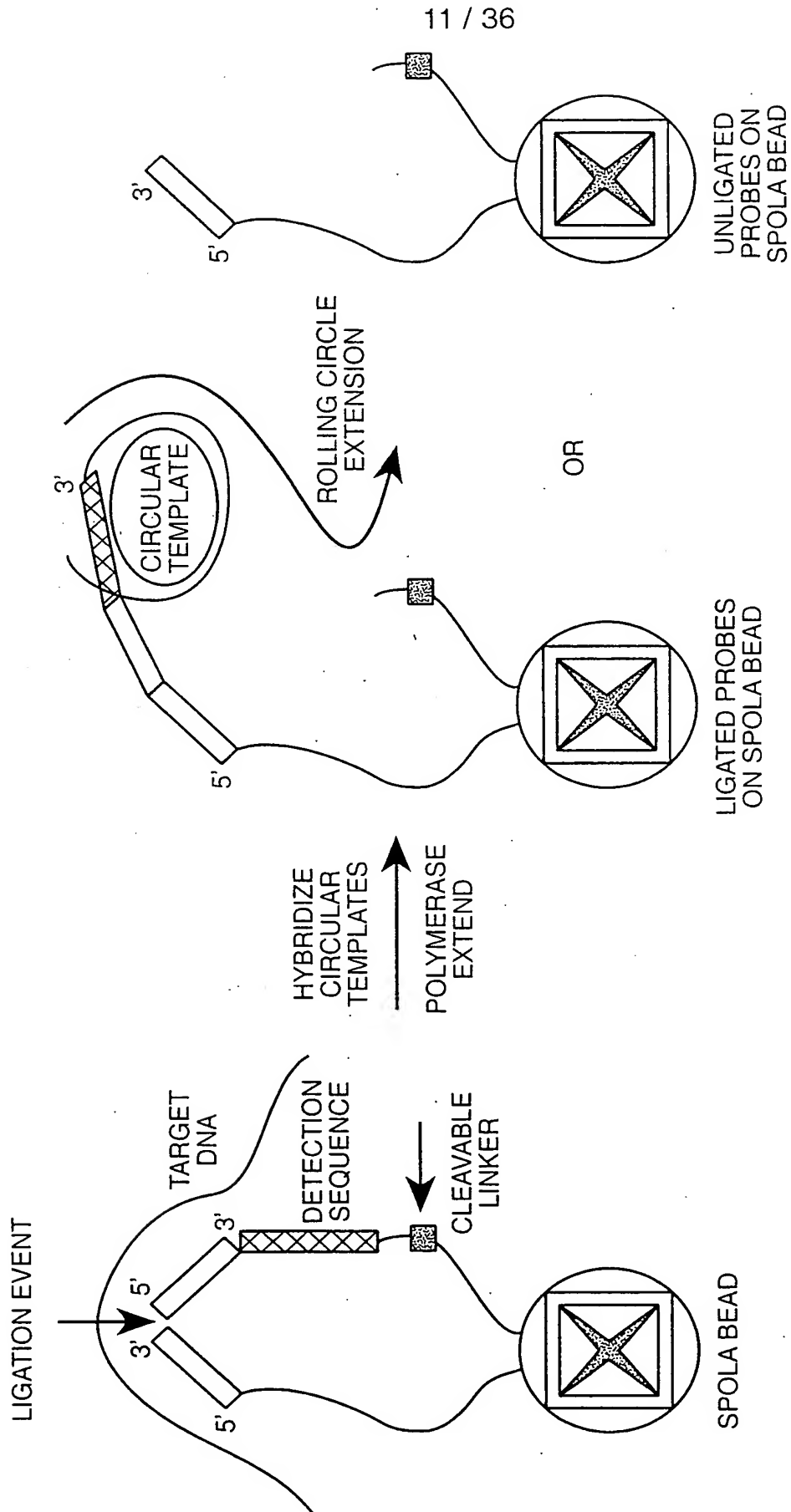
**FIG._6B**

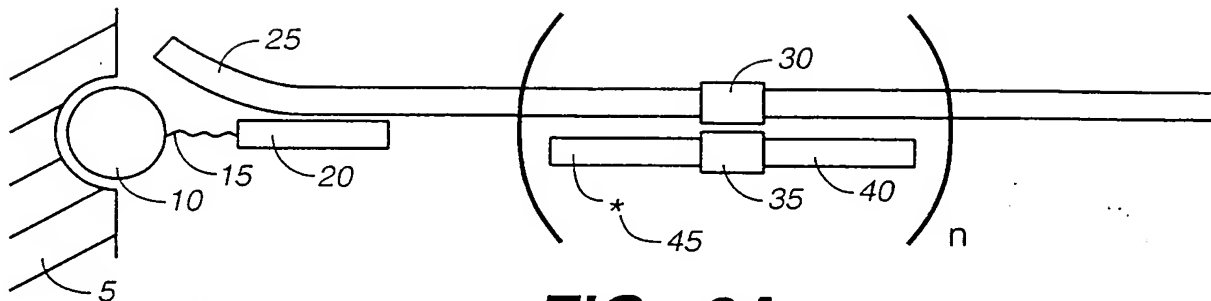
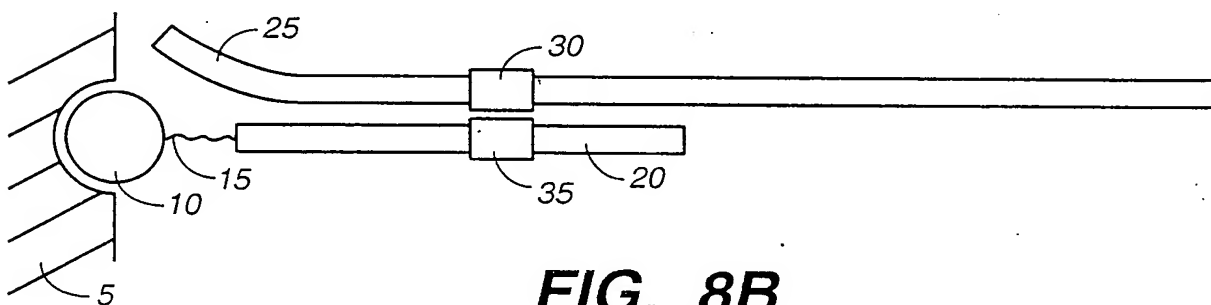
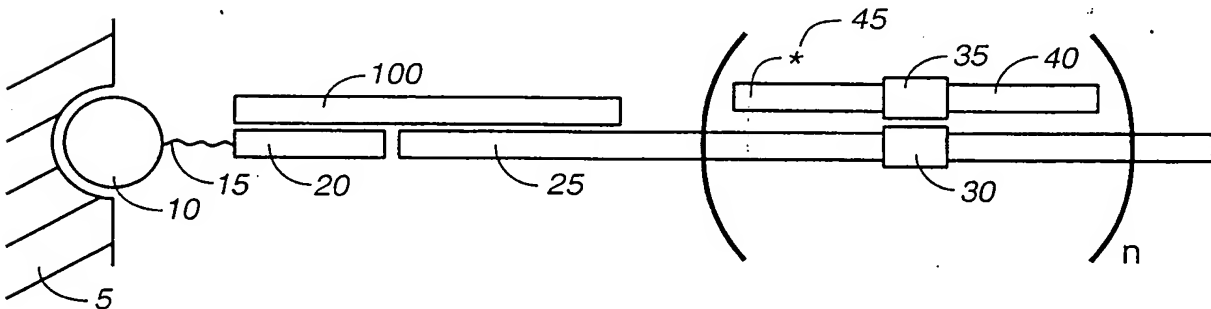
**FIG._7A-1**

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**FIG._7A-2**

**FIG._7B****FIG._7D**



**FIG. 8A****FIG. 8B****FIG. 8C**

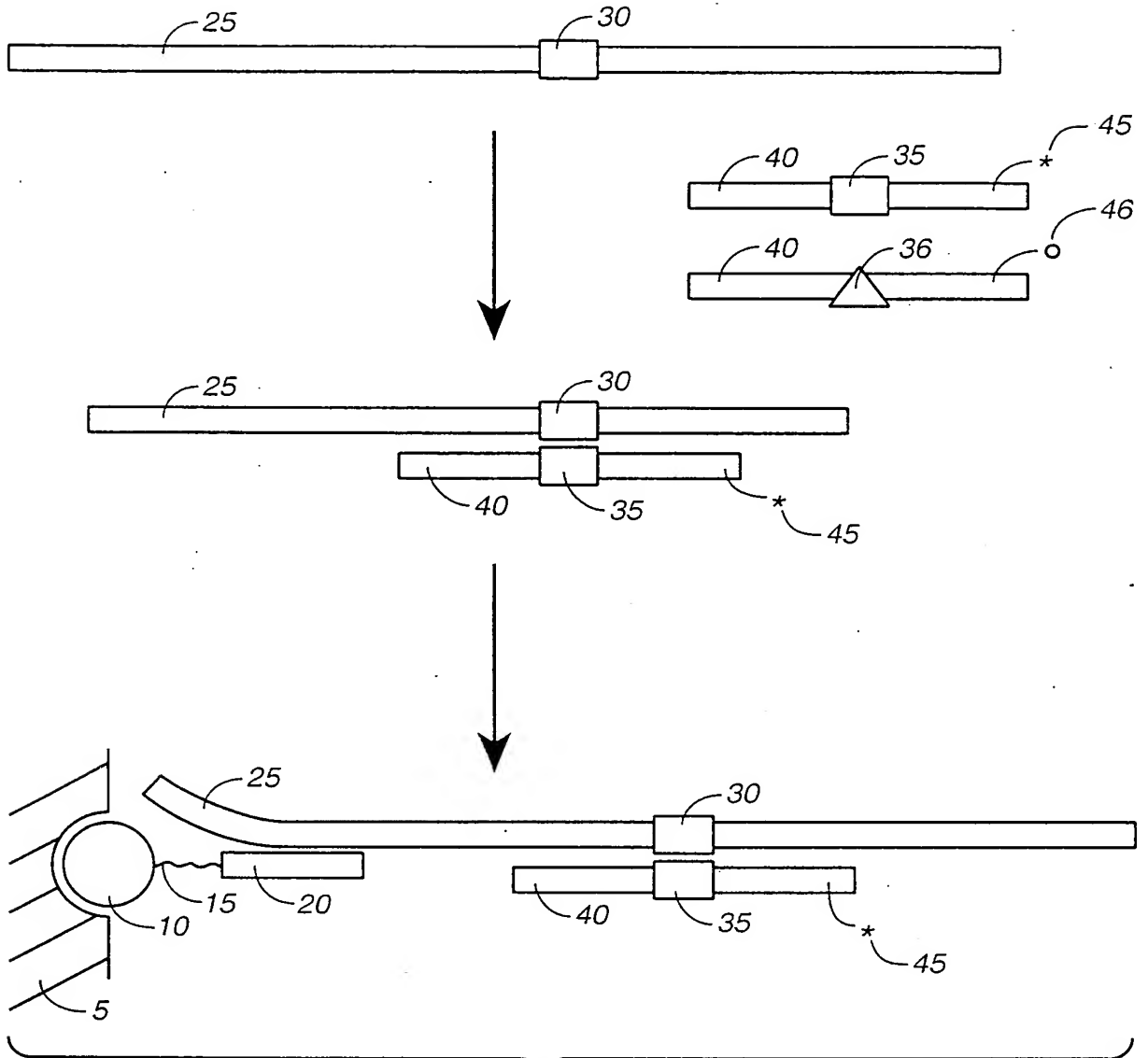


FIG. 8D

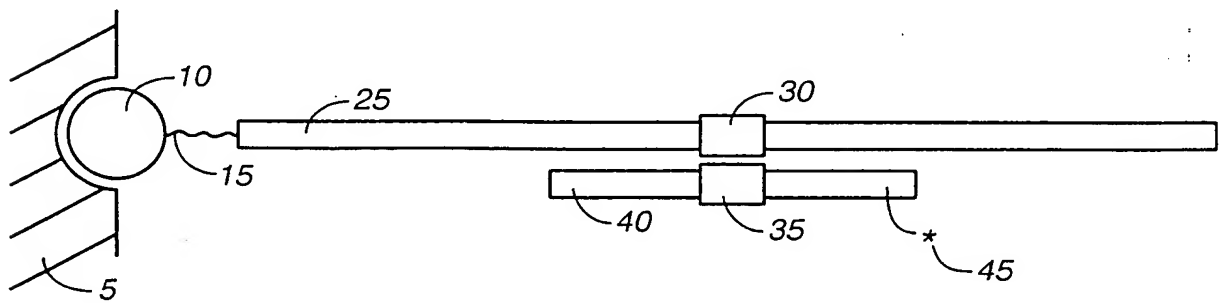
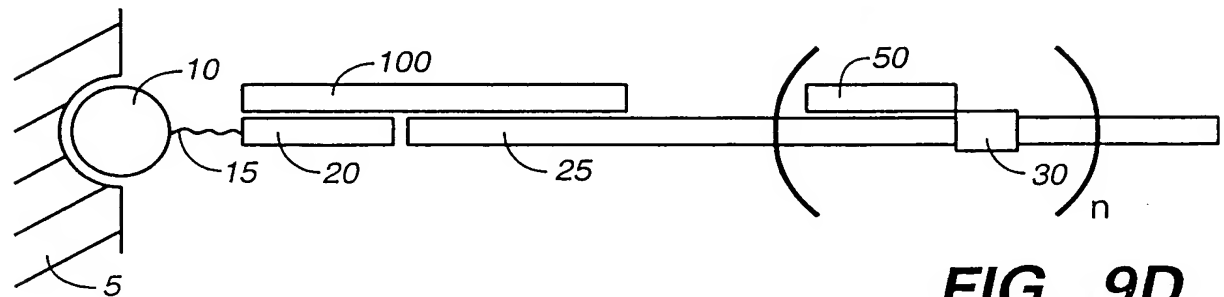
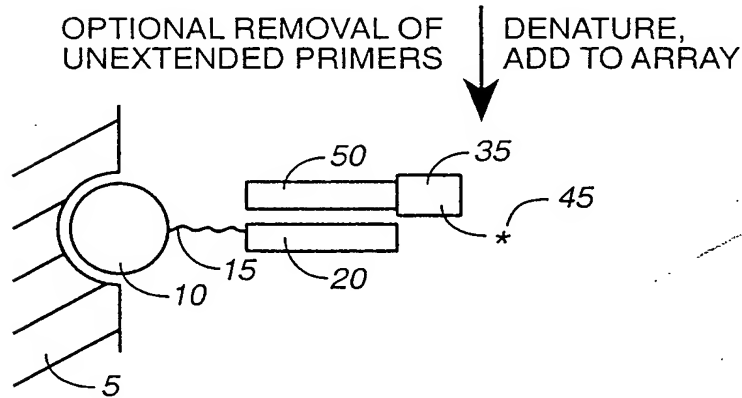
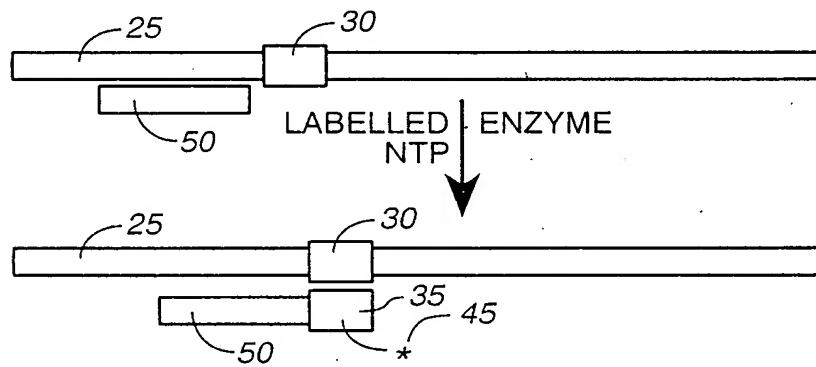
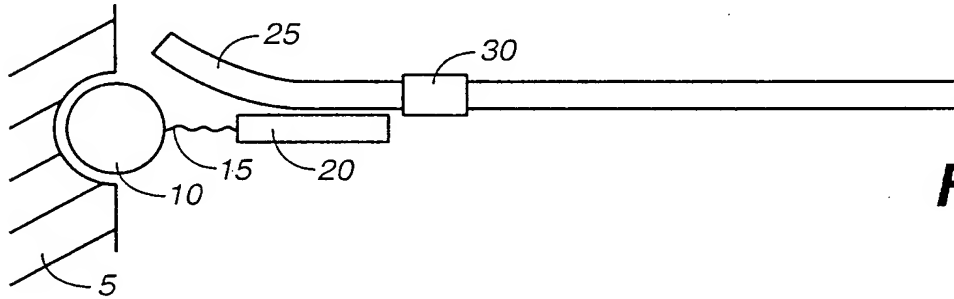
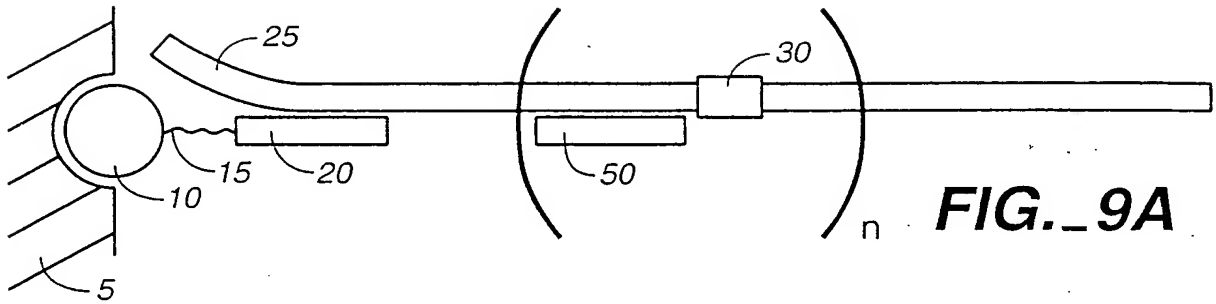


FIG. 8E



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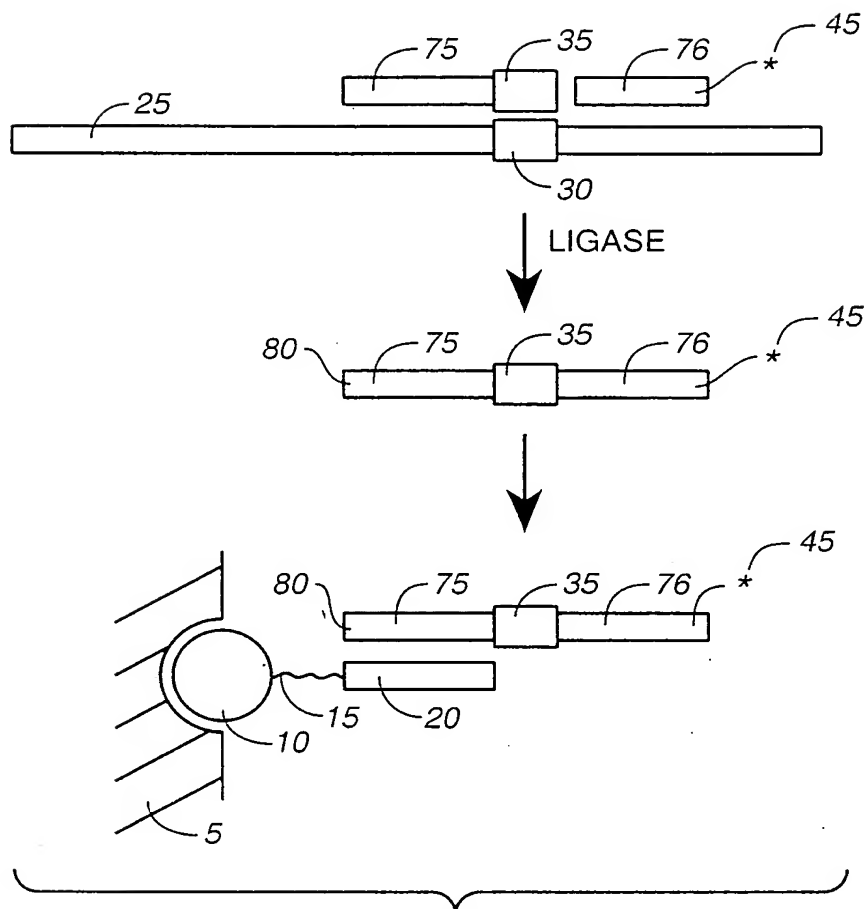


FIG._10A

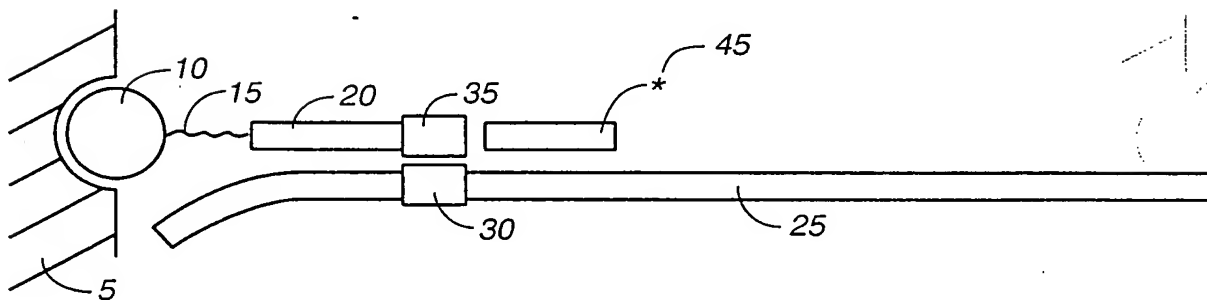
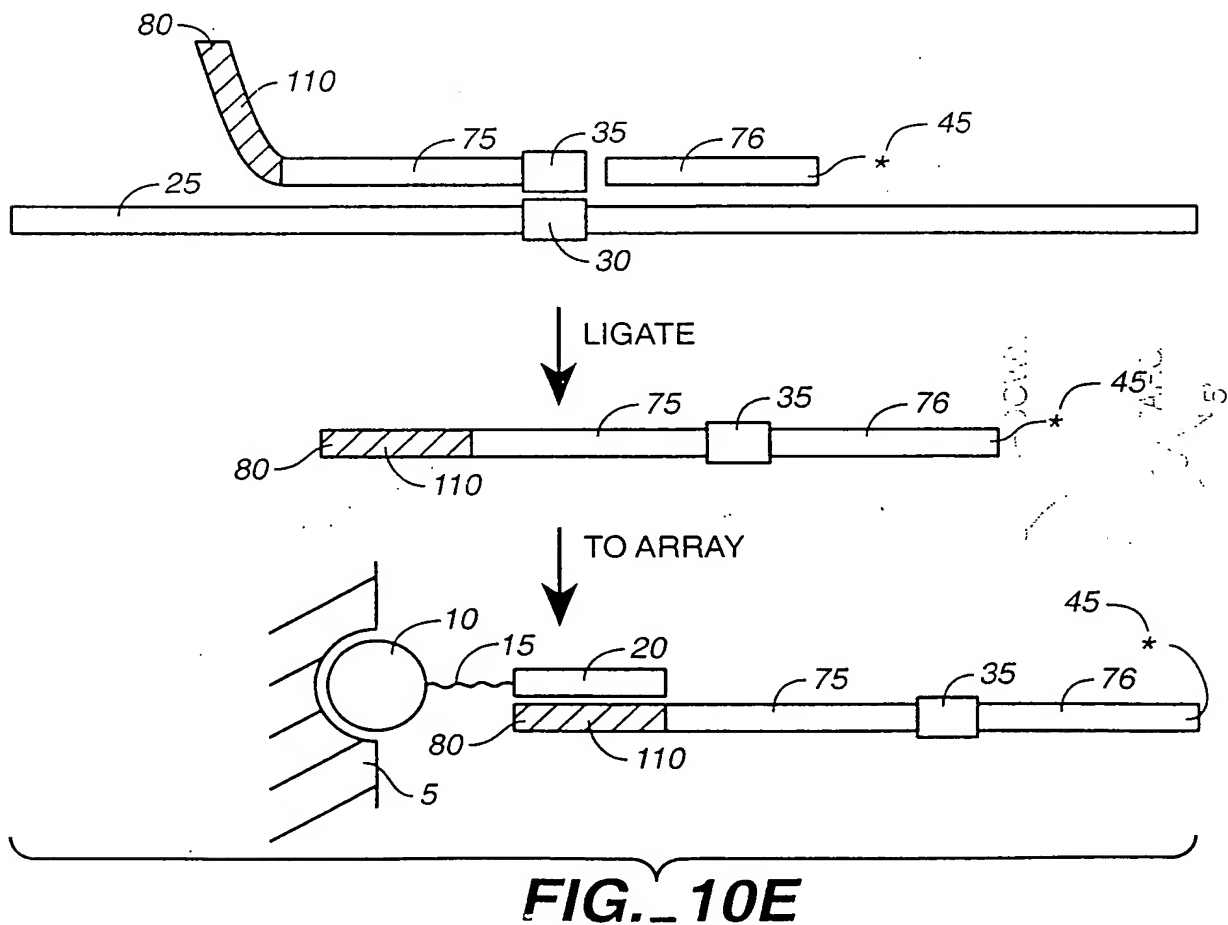
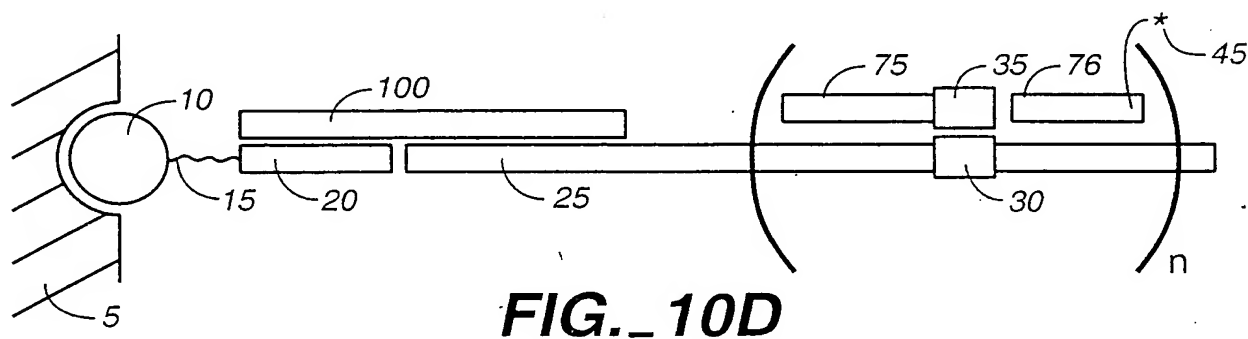
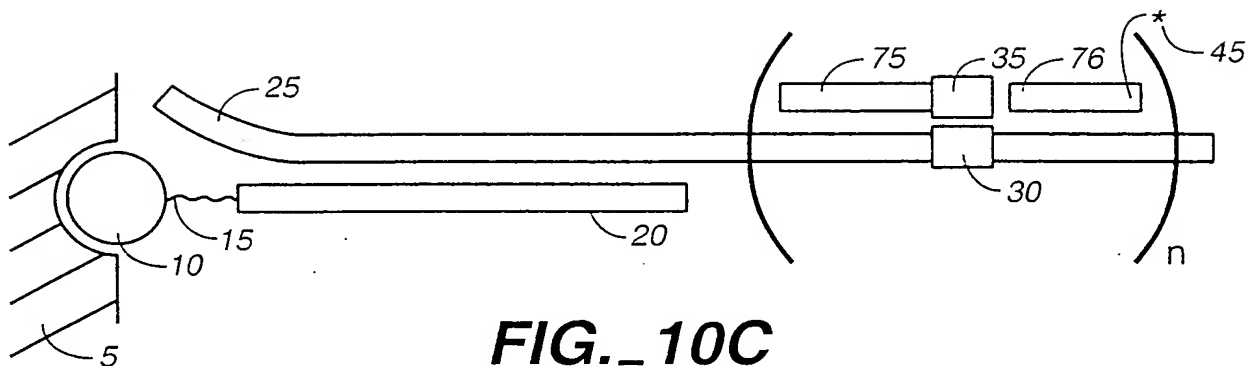


FIG._10B



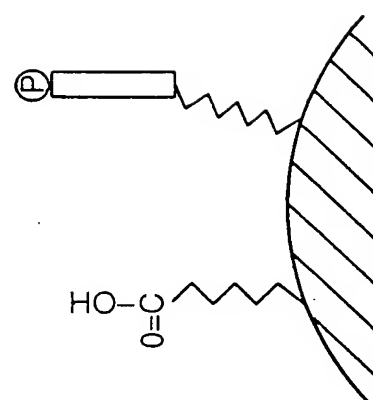
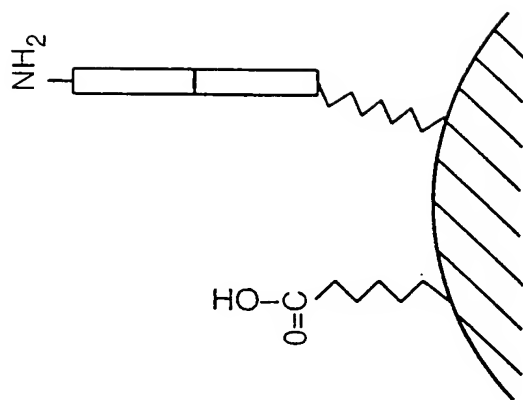


FIG. 11C

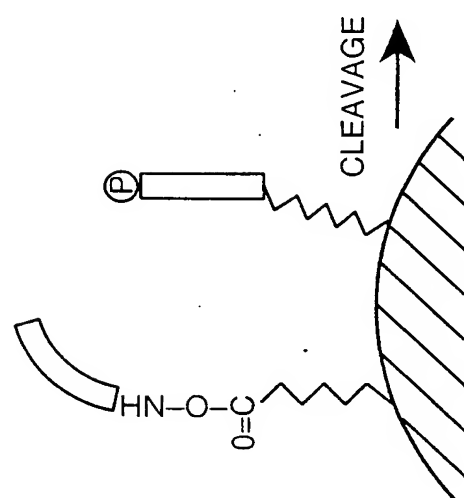
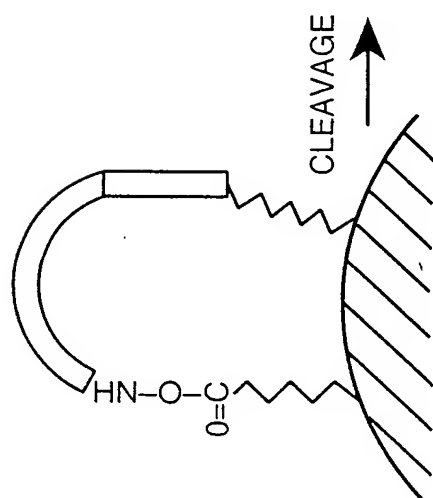


FIG. 11B

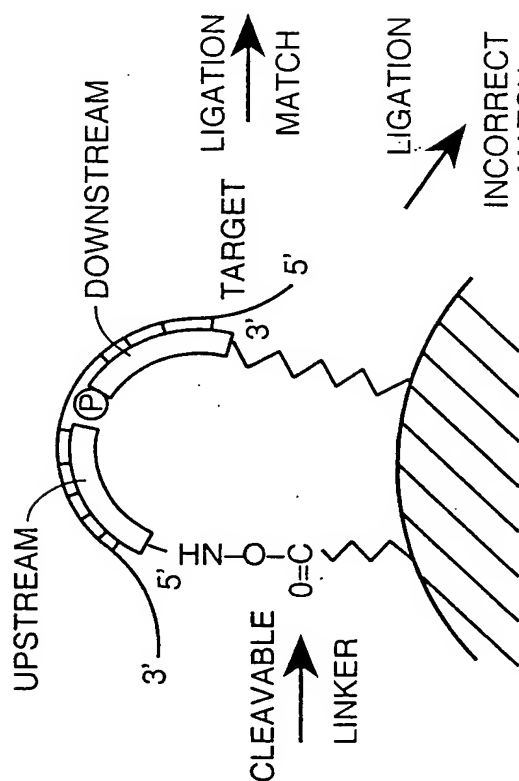
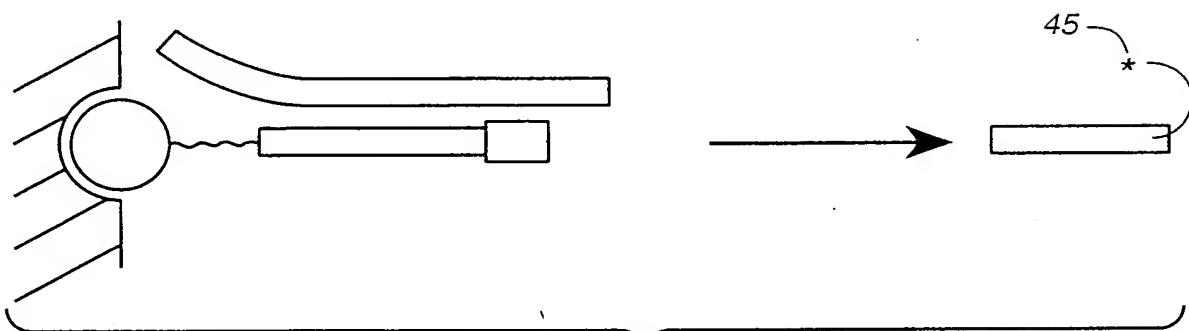
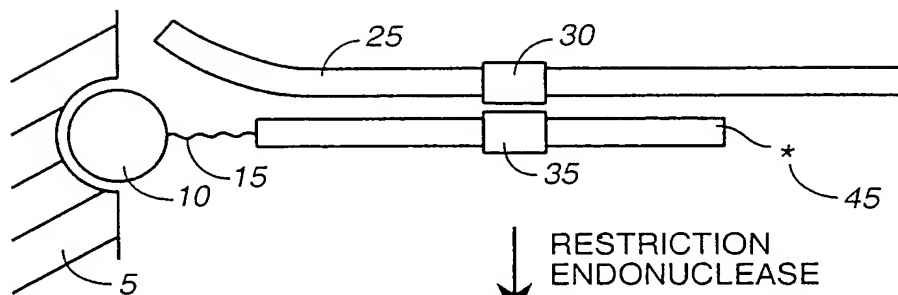
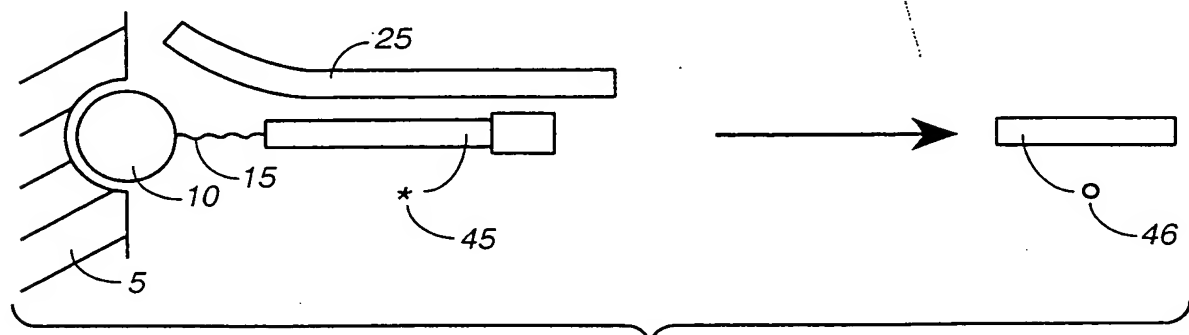
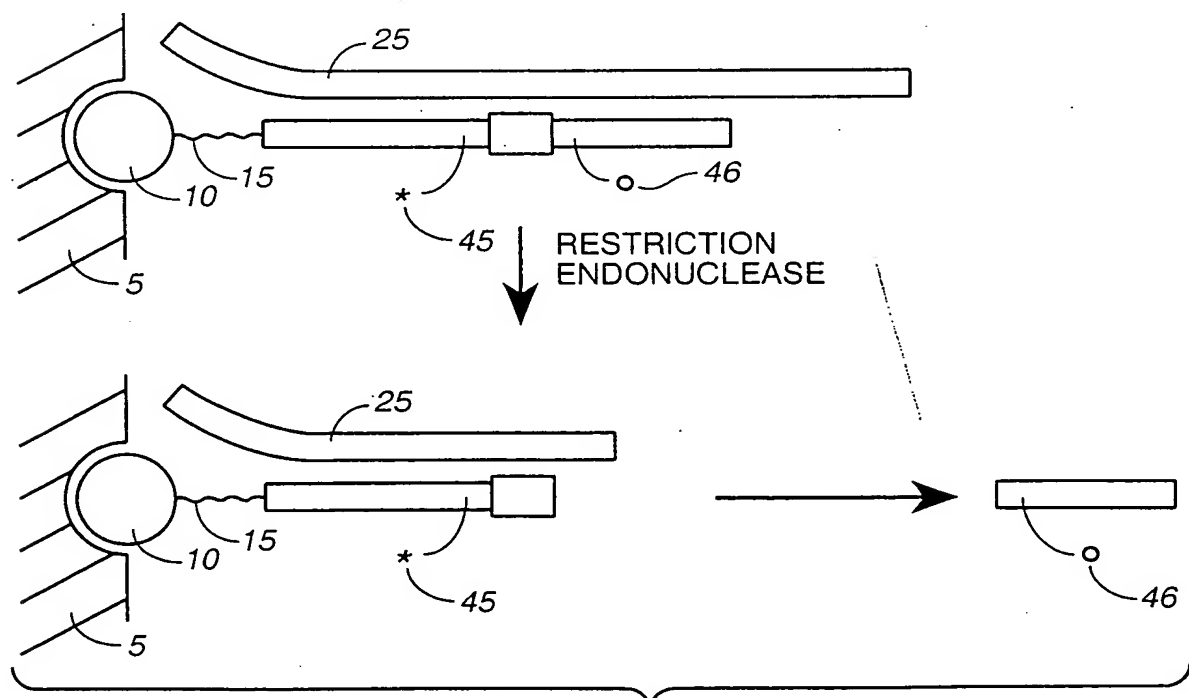
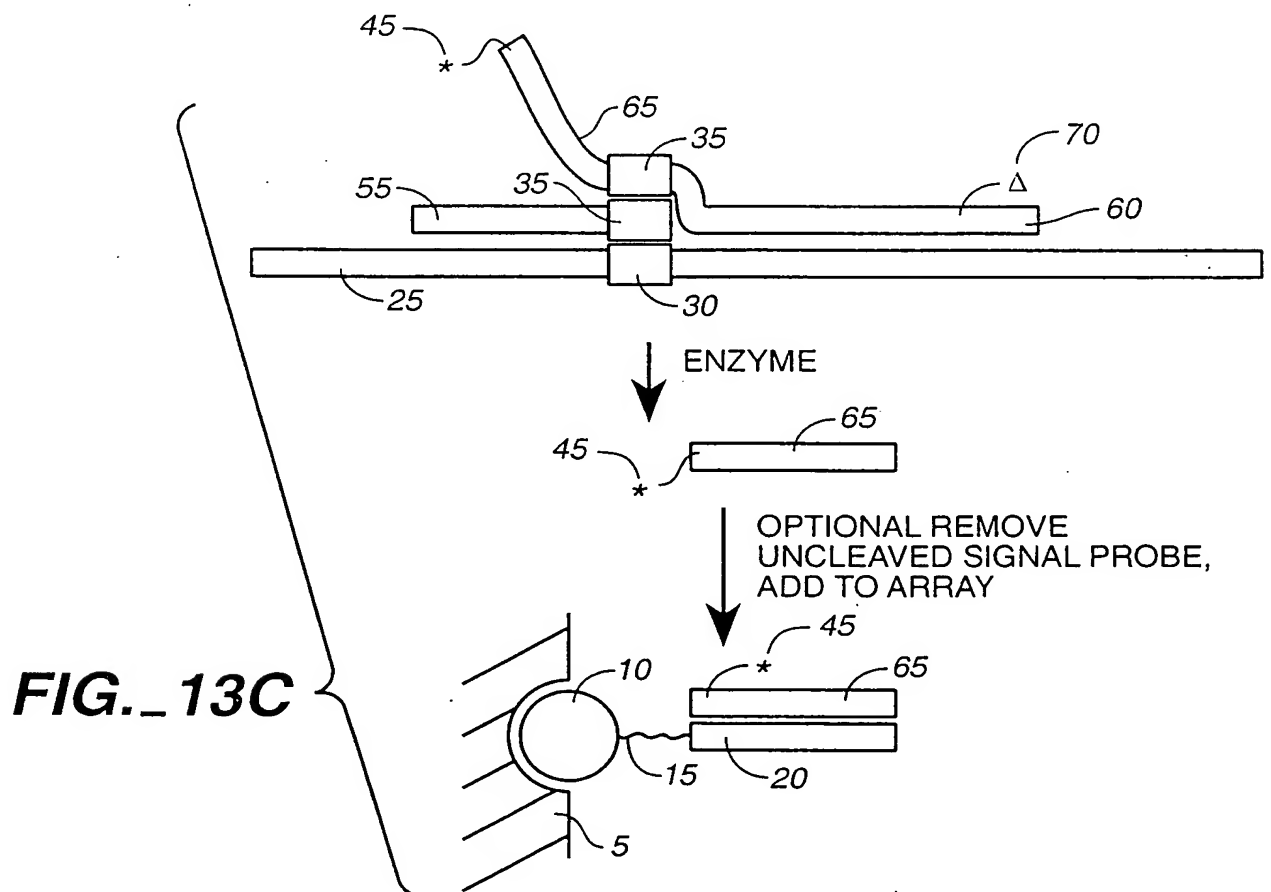
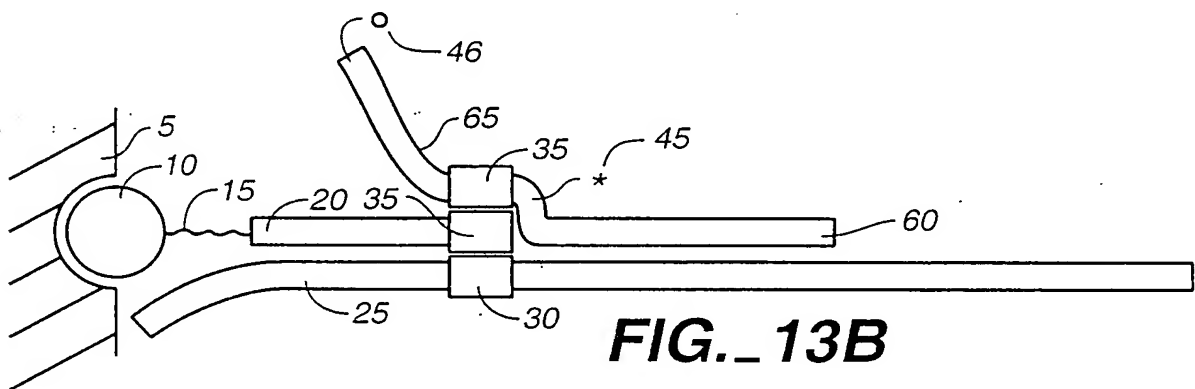
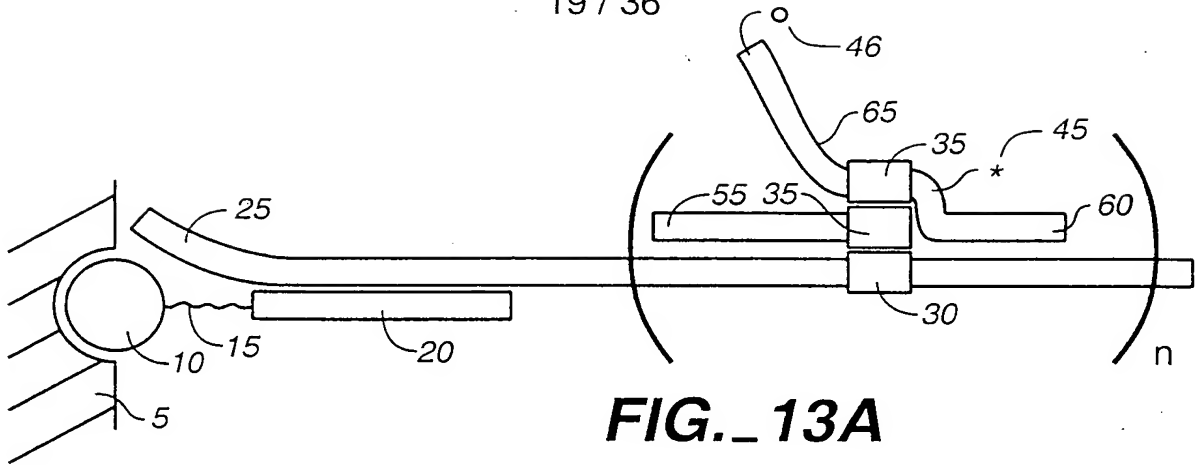


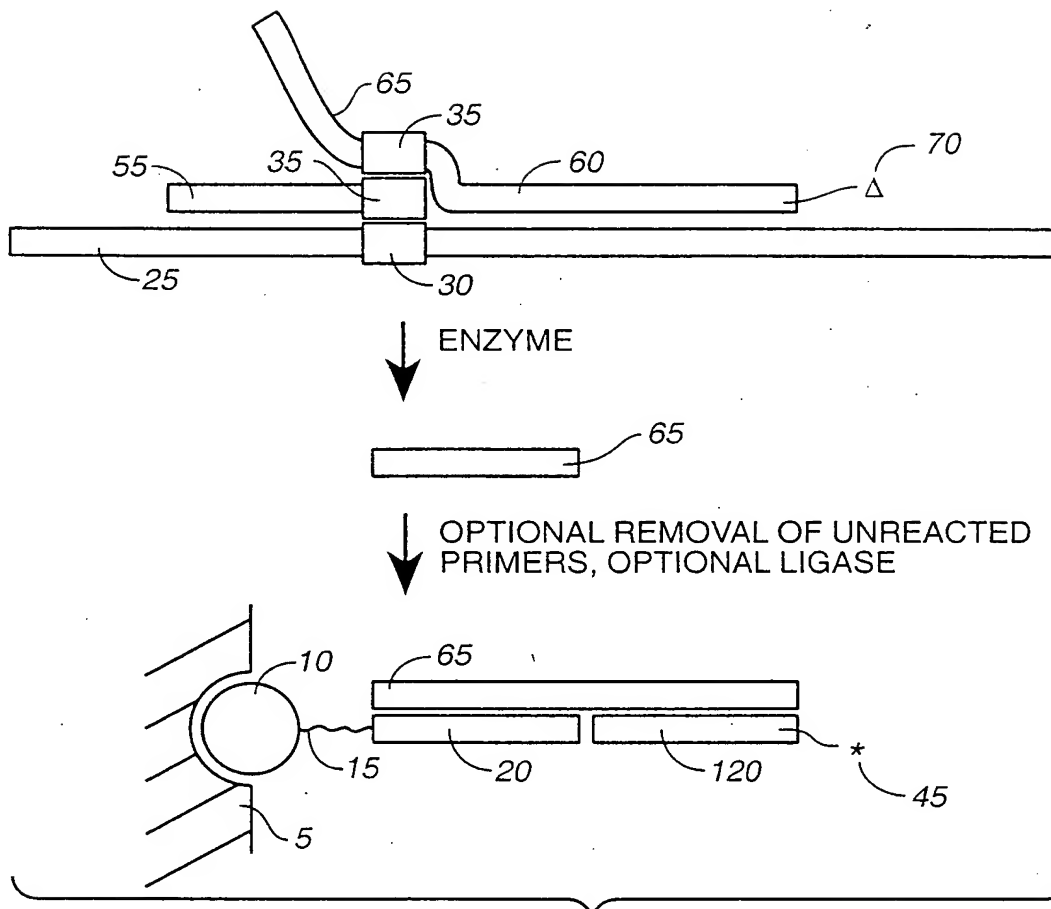
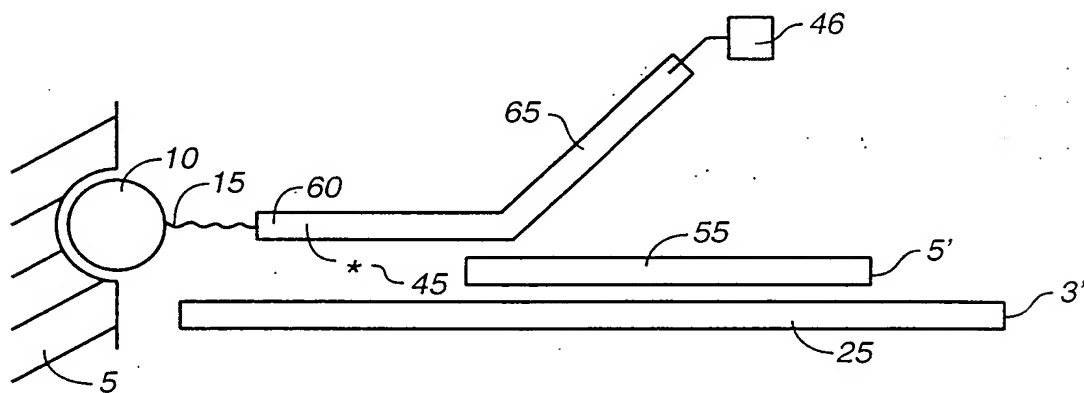
FIG. 11A

**FIG. 12A****FIG. 12B**



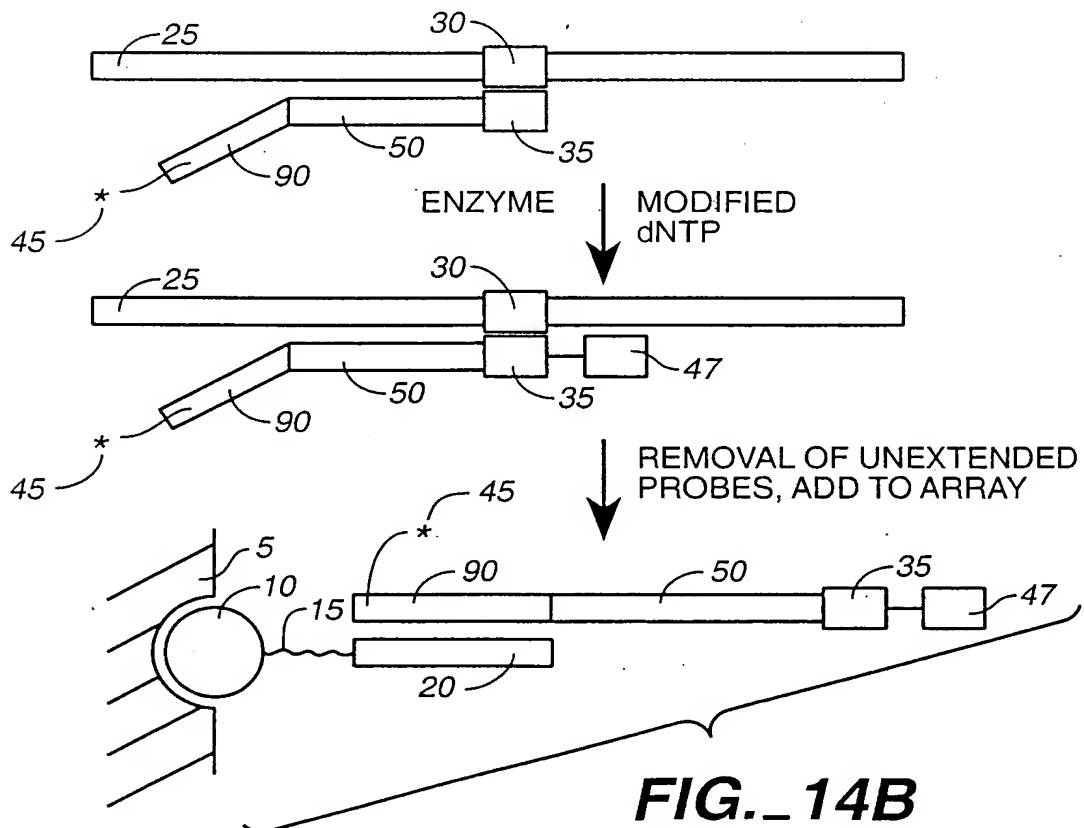
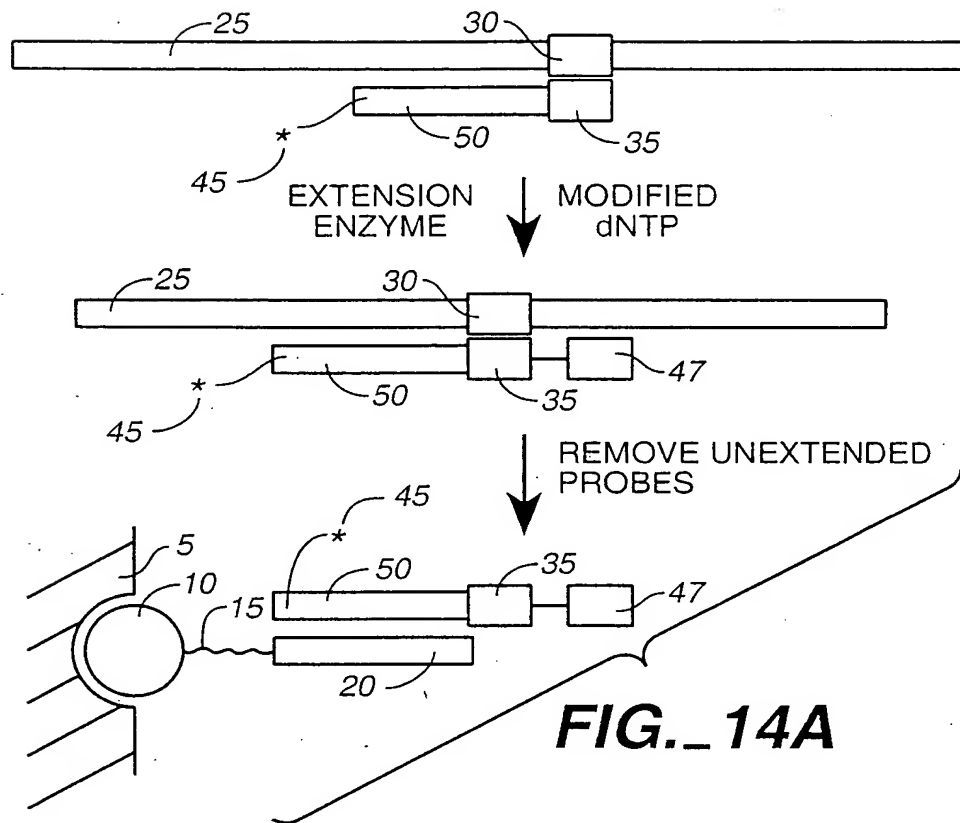
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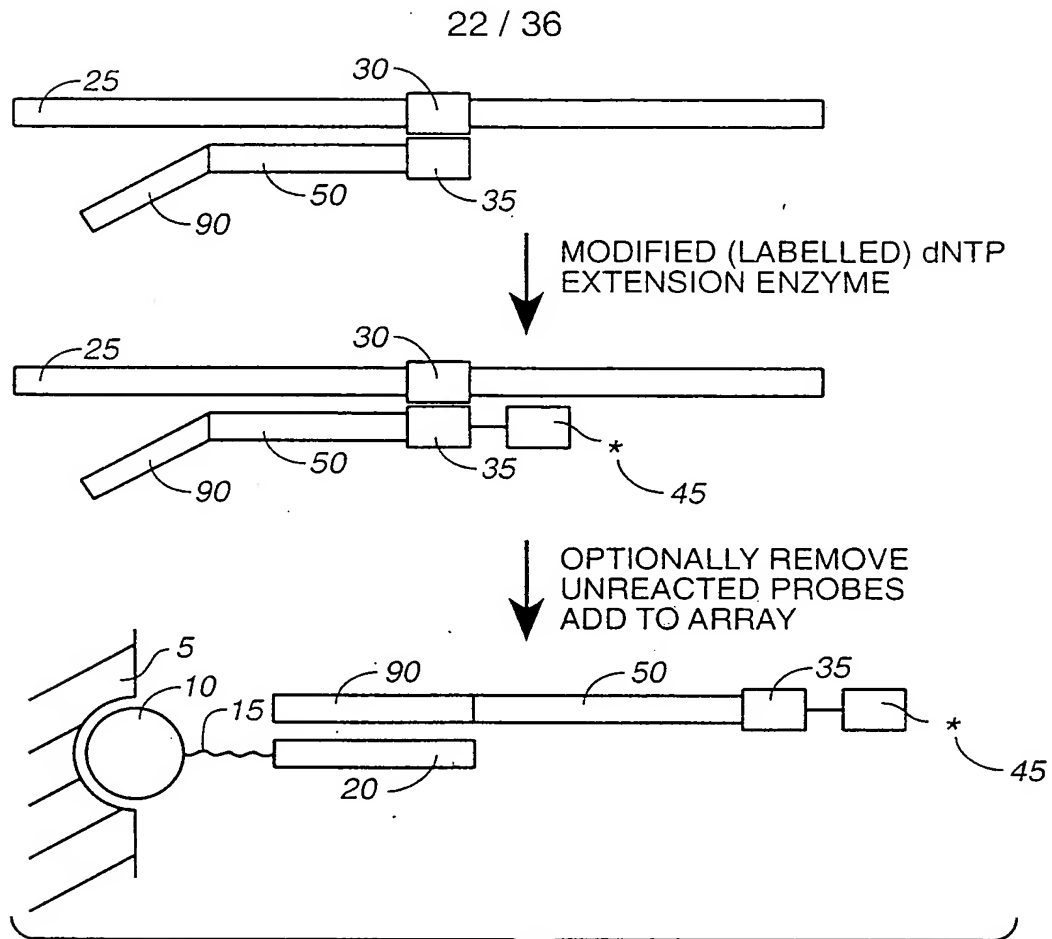
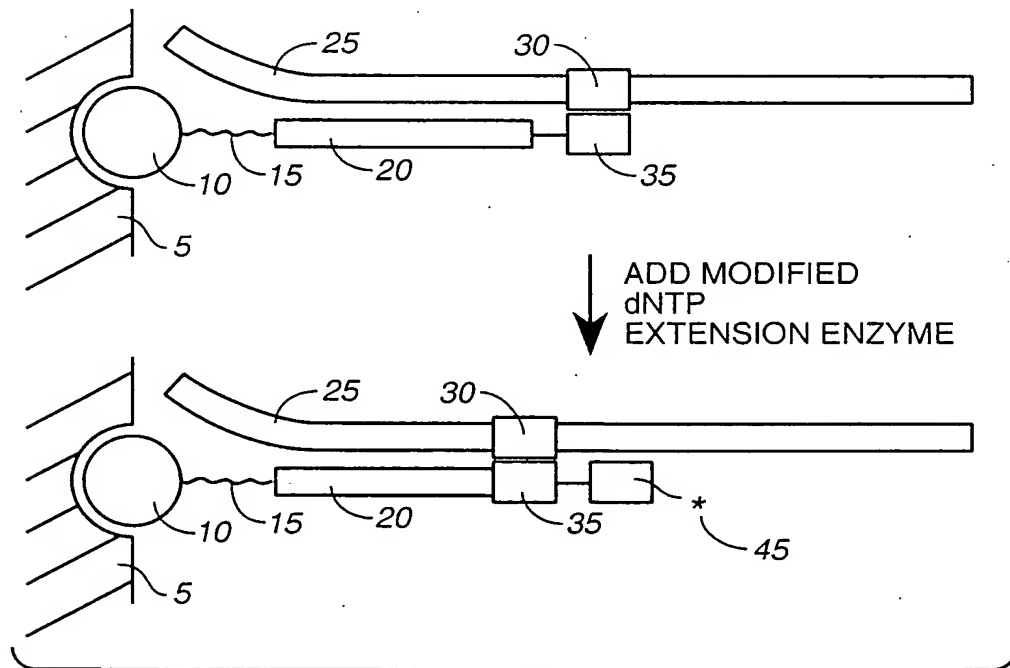


**FIG. 13D****FIG. 13E**

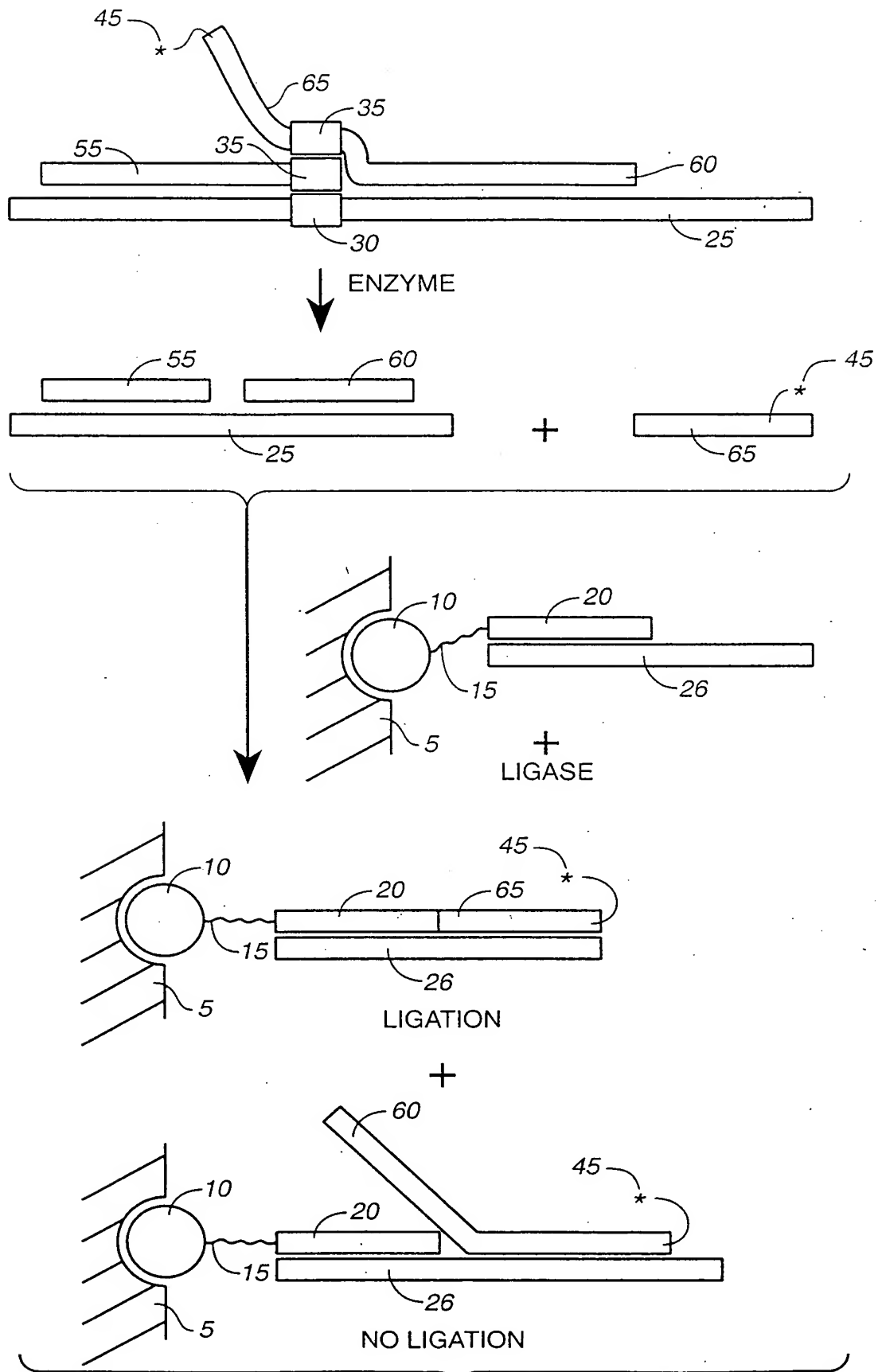


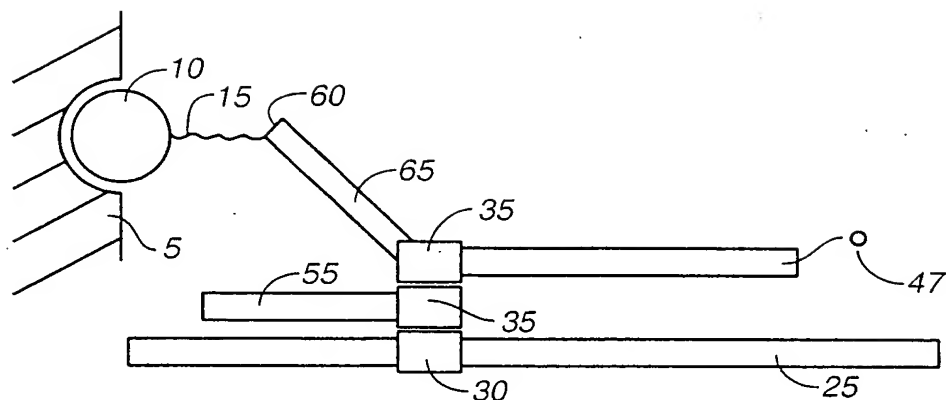
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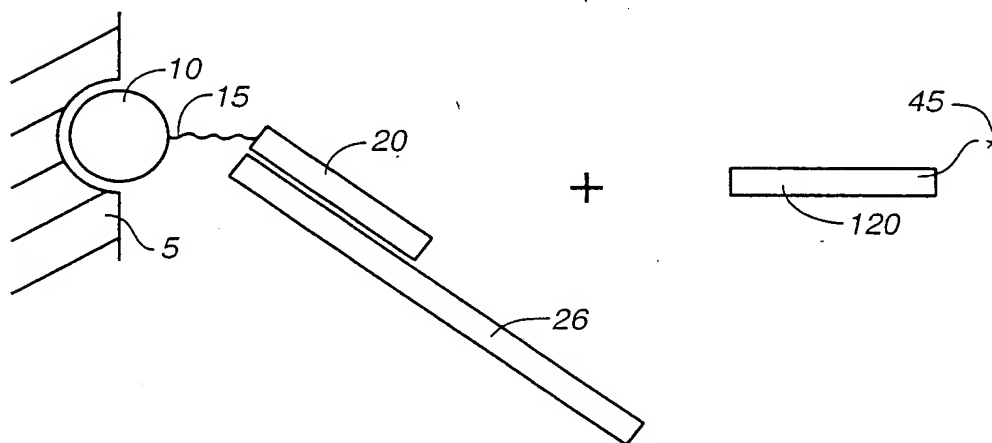
**FIG. 14C****FIG. 14D**

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**FIG. 15A**



↓
CLEAVAGE ENZYME
TARGET TEMPLATE



↓
LIGATION

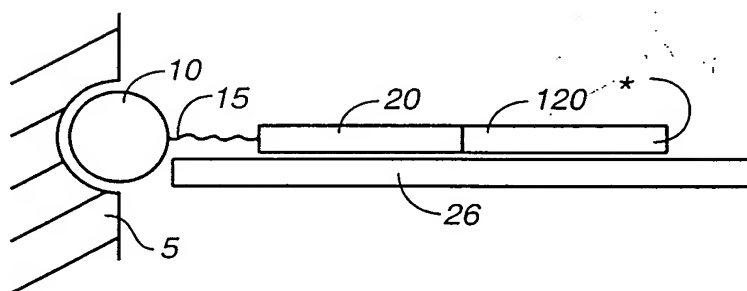
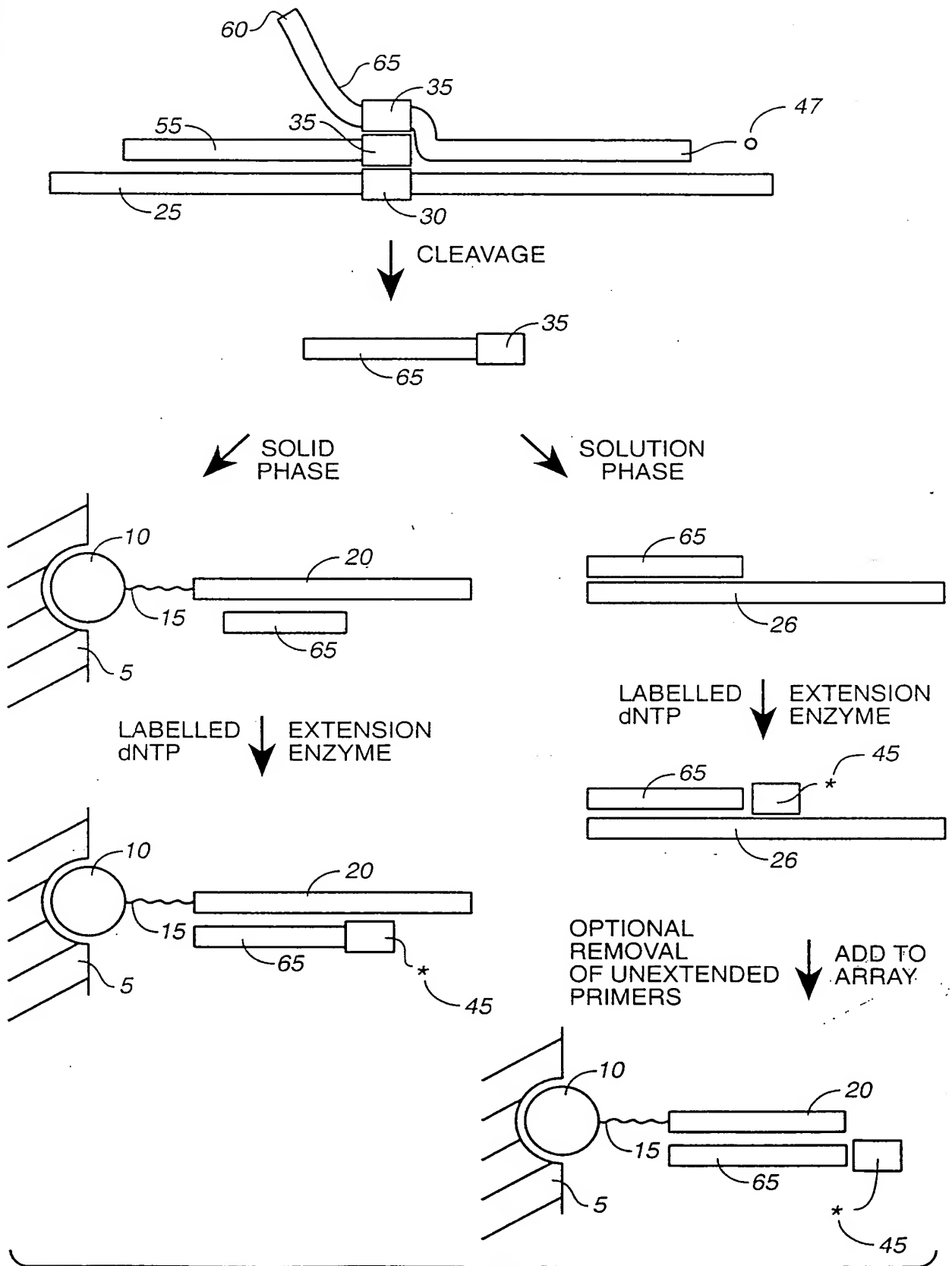
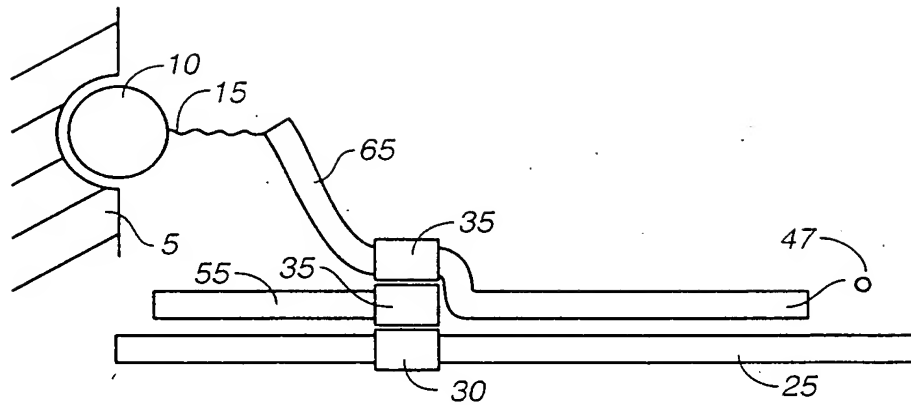


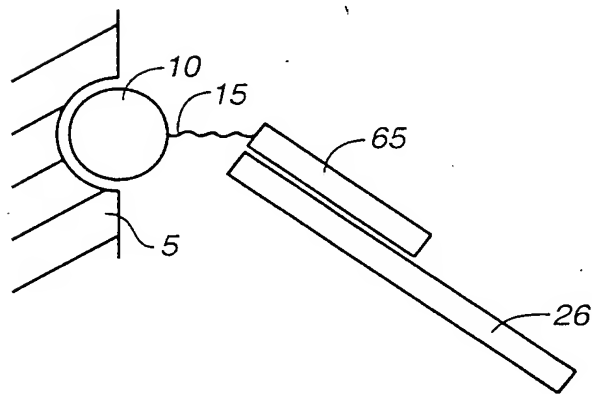
FIG. 15B

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**FIG. 16A**



CLEAVAGE
ADD TARGET TEMPLATE



LABELLED
dNTP

EXTENSION
ENZYME

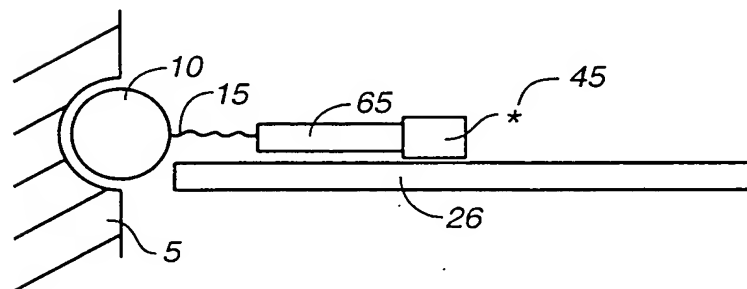
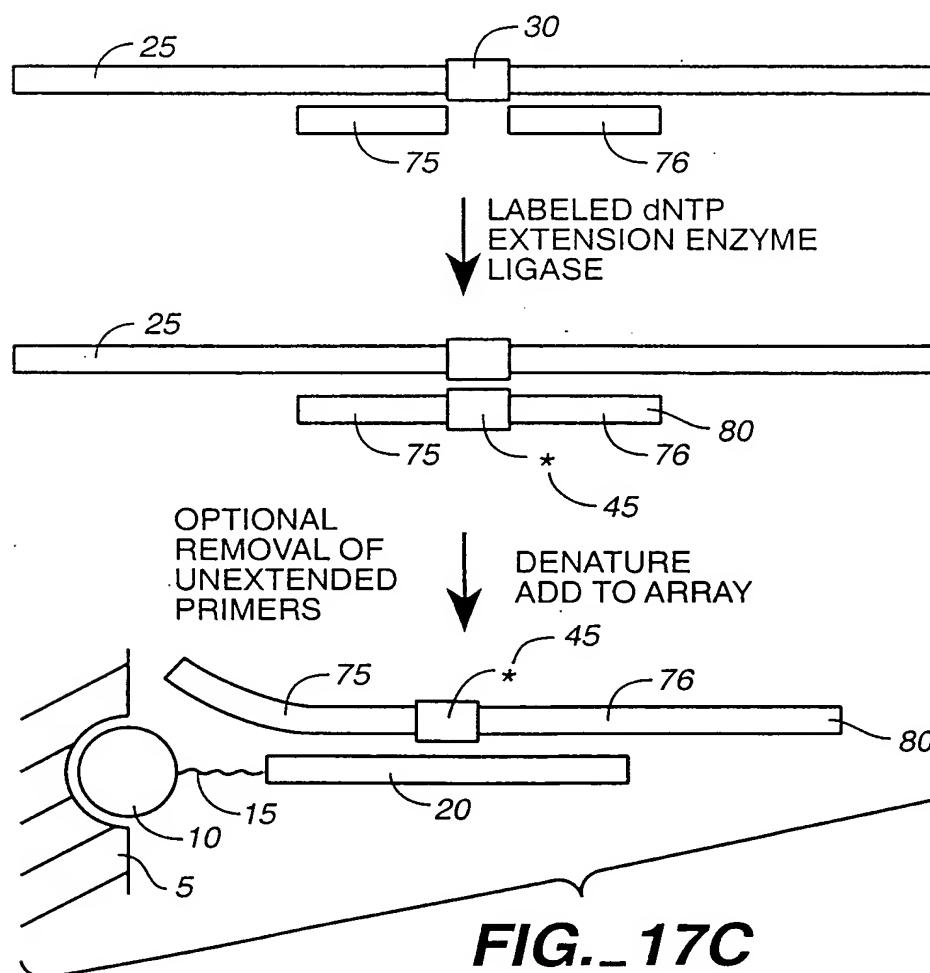
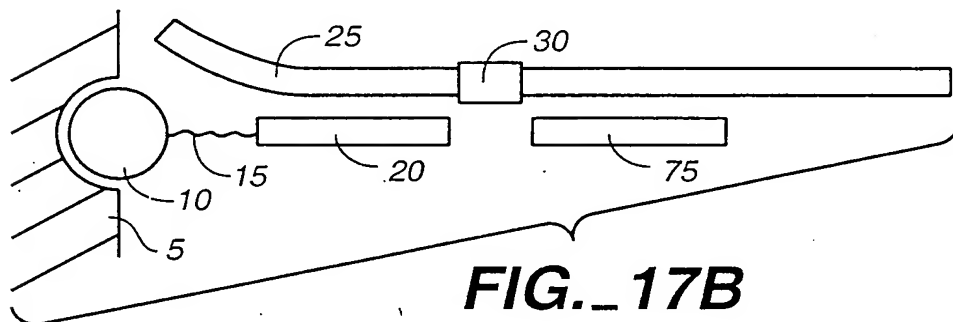
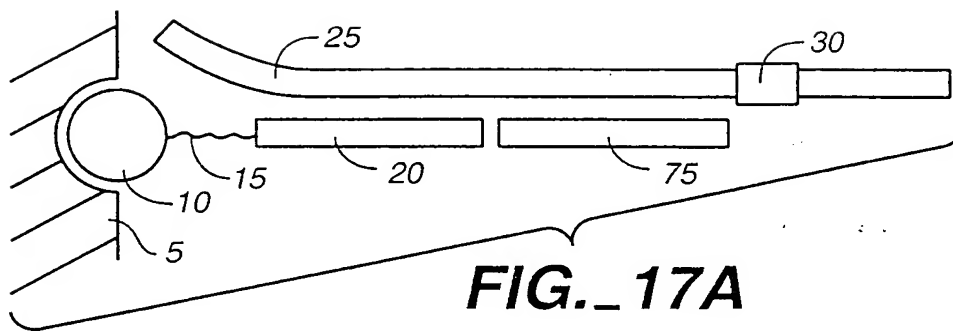
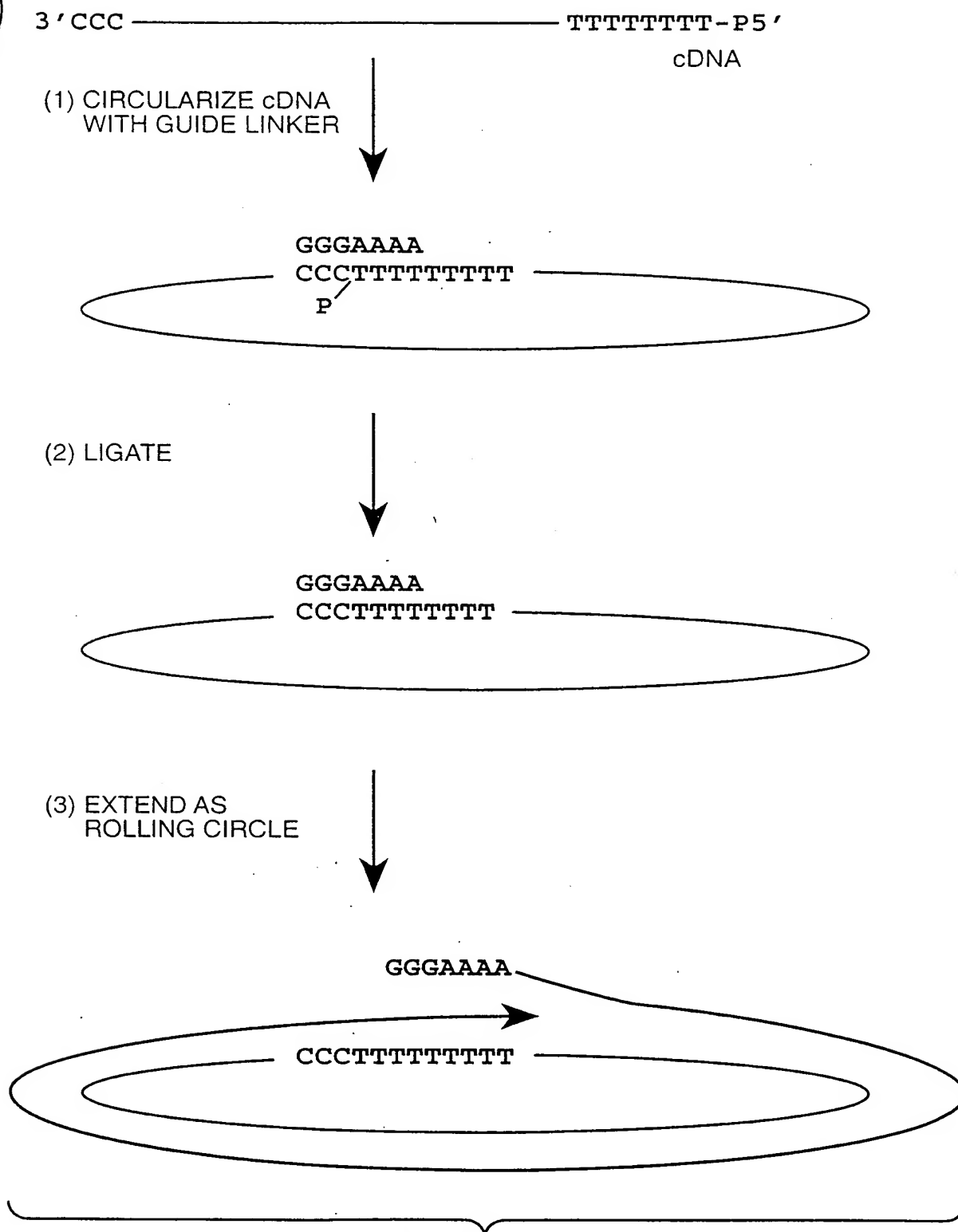


FIG. 16B



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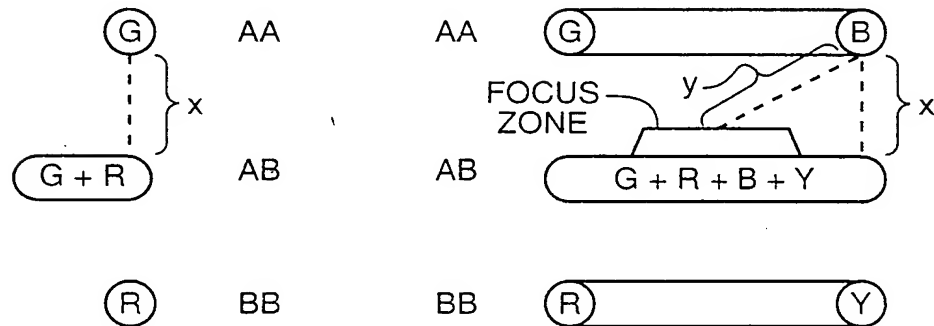
**FIG. 18**

SINGLE LABELED PROBE

GENOTYPE	SIGNAL
AA	G / G
AB	G / R
BB	R / R

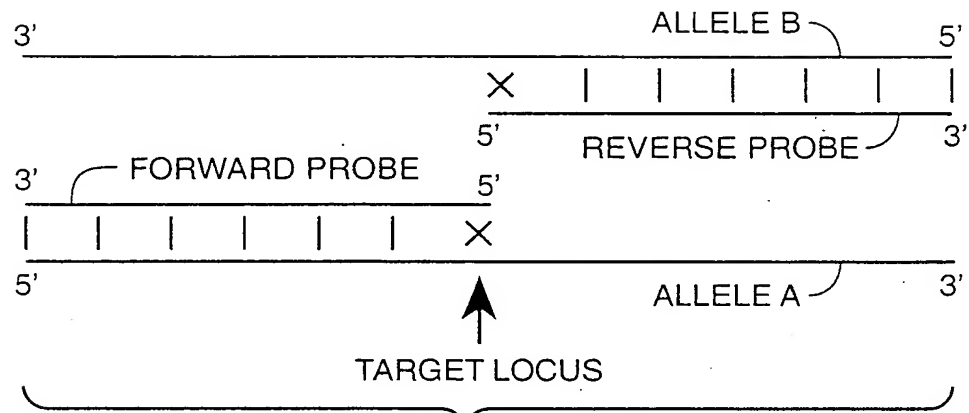
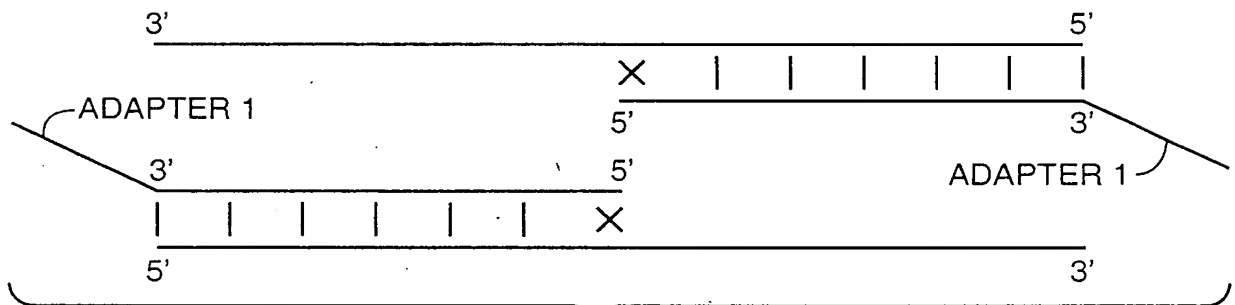
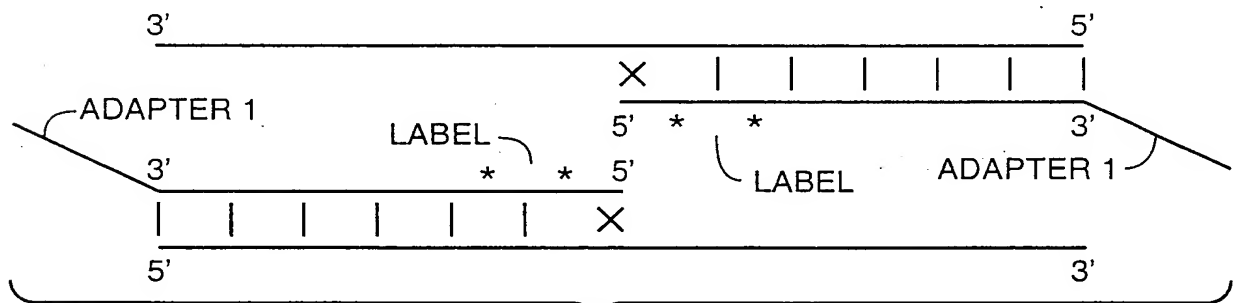
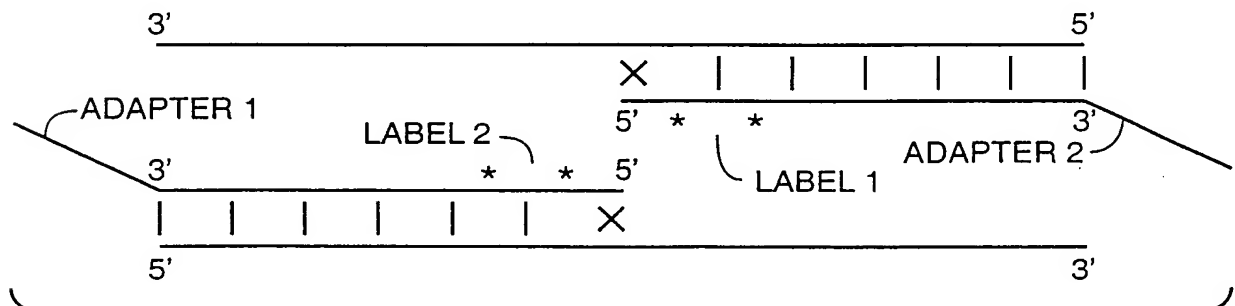
MULTI-LABELED PROBE

GENOTYPE	SIGNAL
AA	G,B / G,B
AB	G,B / R,Y
BB	R,Y / R,Y

SIGNAL RANGE

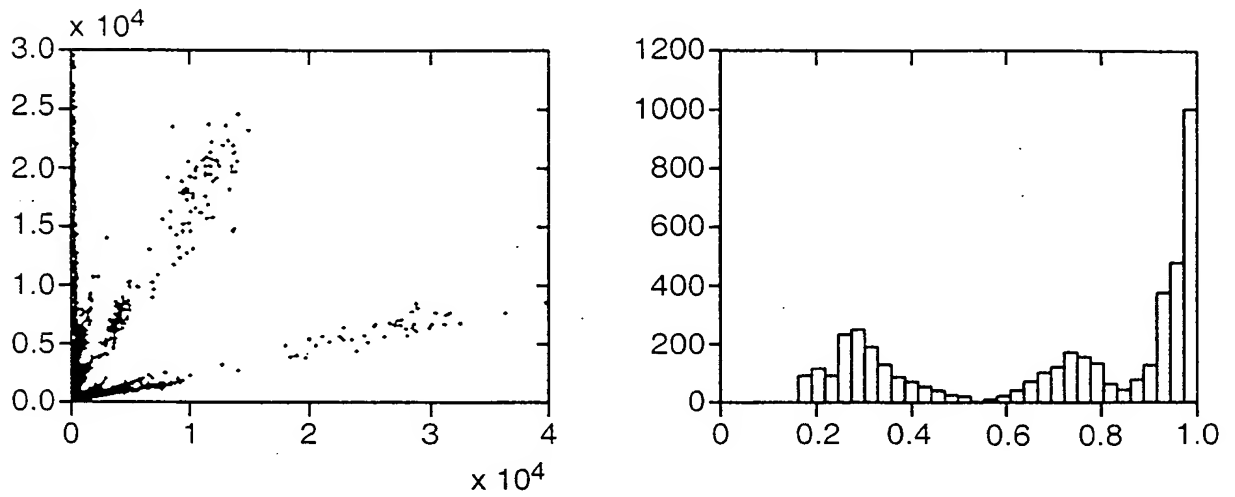
x = SINGLE LABEL DISTANCE
y = MULTI-LABEL DISTANCE

FIG. 19

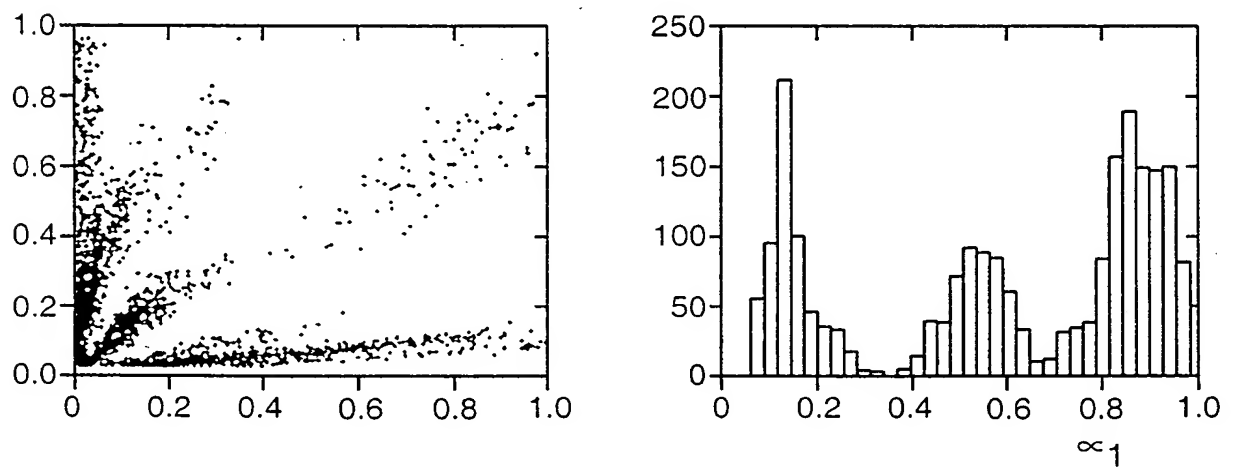
**FIG._20A****FIG._20B****FIG._20C****FIG._20D**



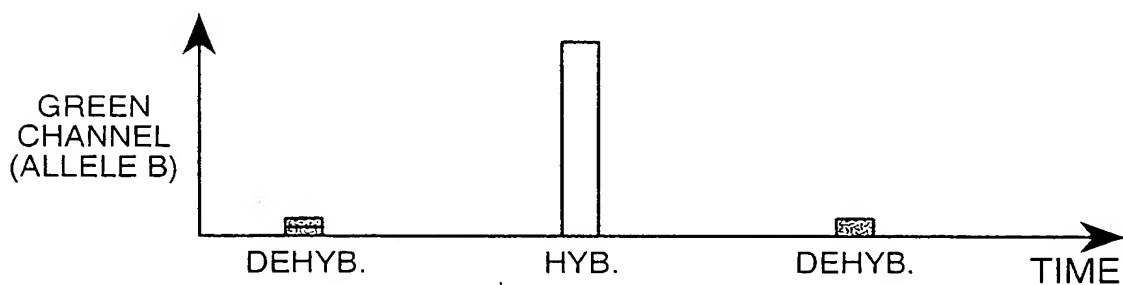
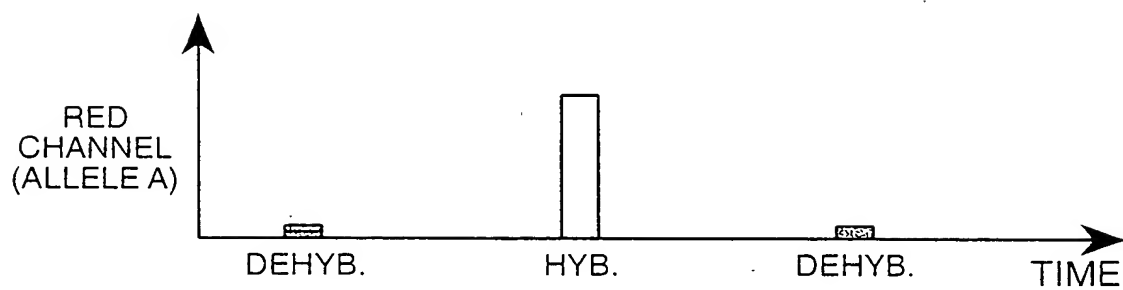
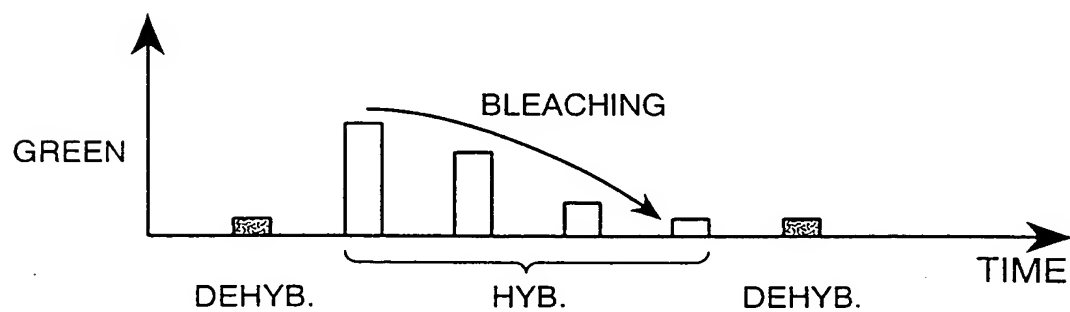
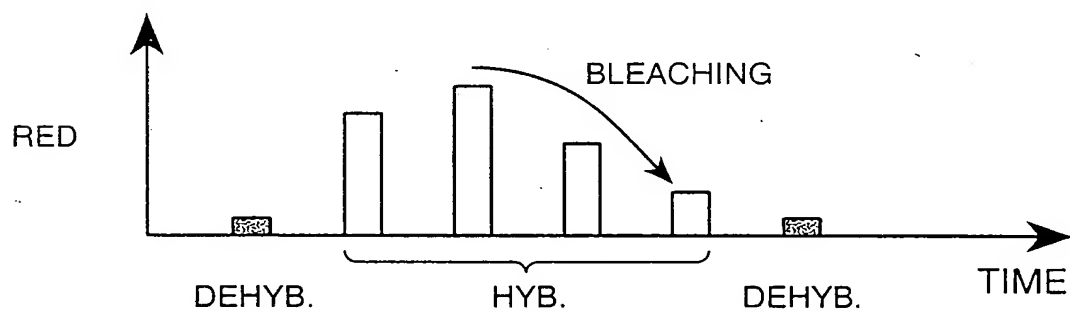
BEFORE NORMALIZATION

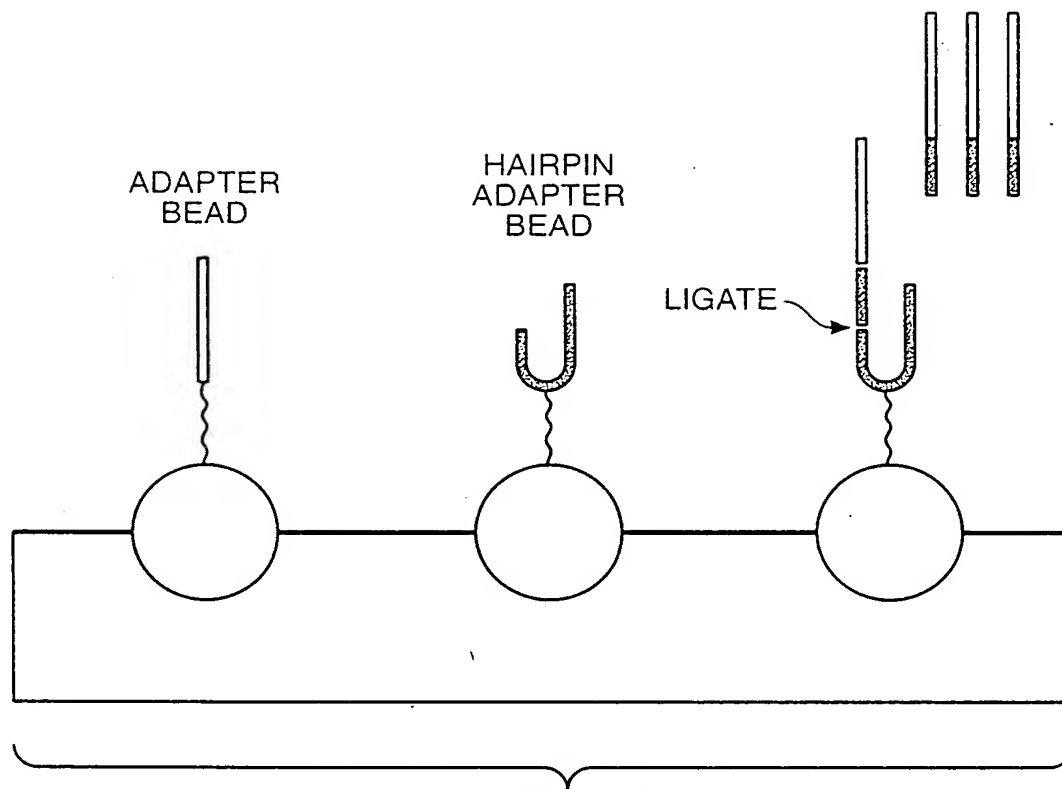


AFTER NORMALIZATION

**FIG._21**

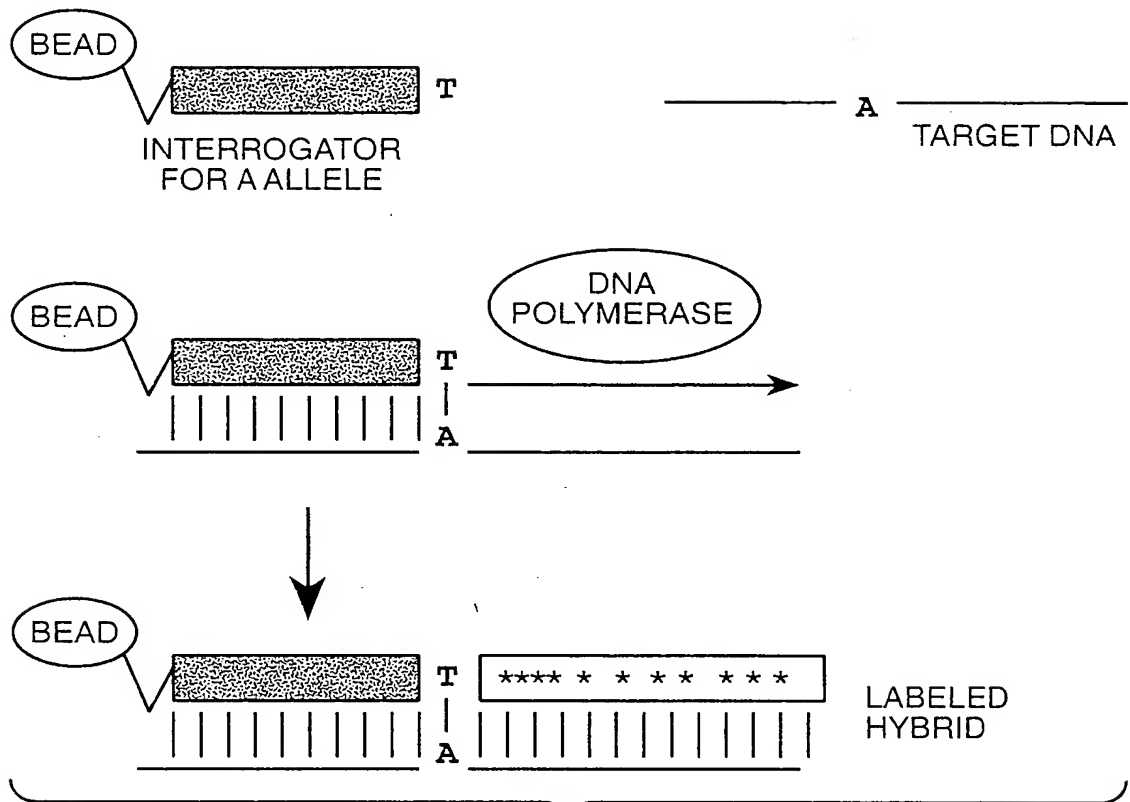
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**FIG._22A****FIG._22B**

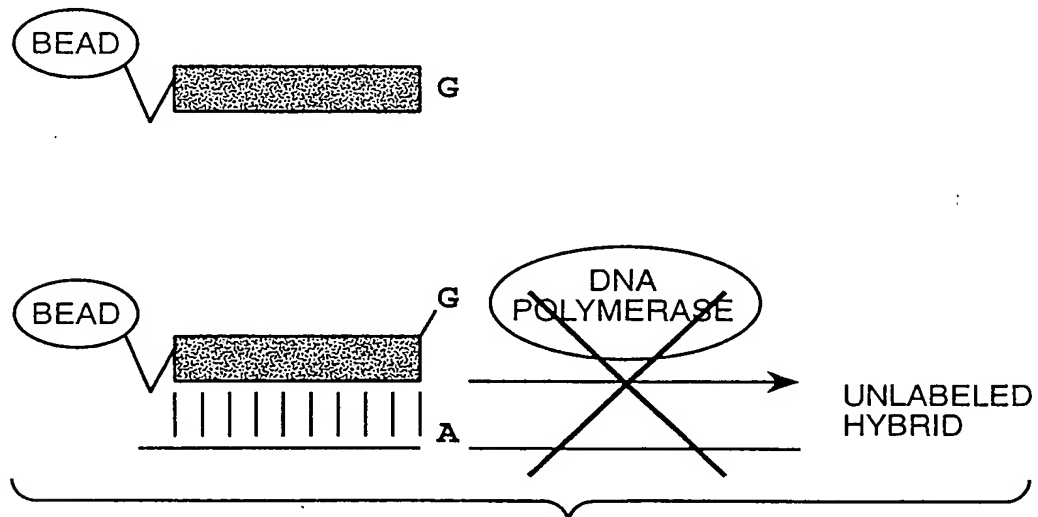
**FIG. 23**

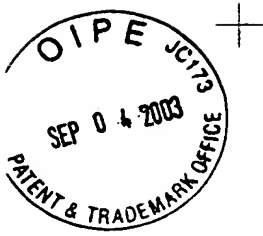


MATCH TO SNP ALLELE

**FIG..24A**

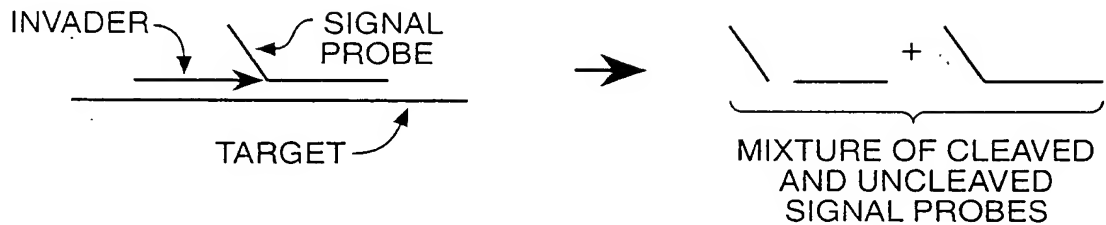
MISMATCH TO SNP ALLELE

**FIG..24B**

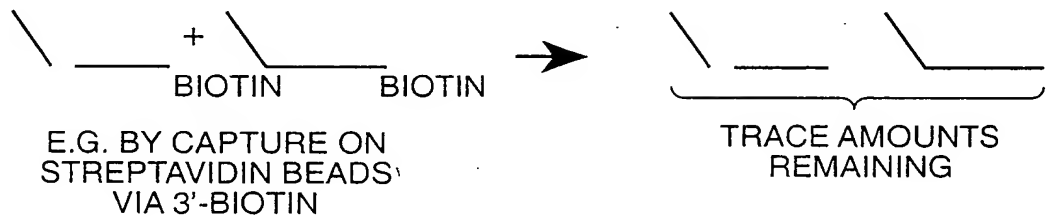


INVADER - PCR

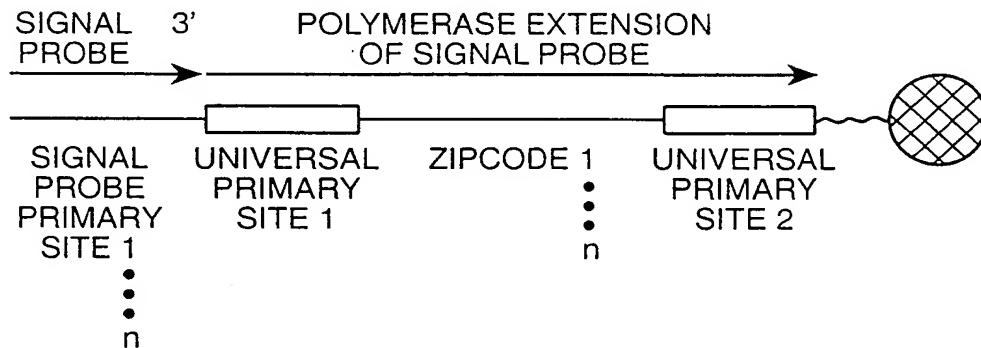
1) INVADER REACTION



2) REMOVAL OF UNCLEAVED SIGNAL PROBES



3) SIGNAL PROBE PRIMES SYNTHESIS OF AMPLICON TARGET STRAND



4) PCR AMPLIFICATION

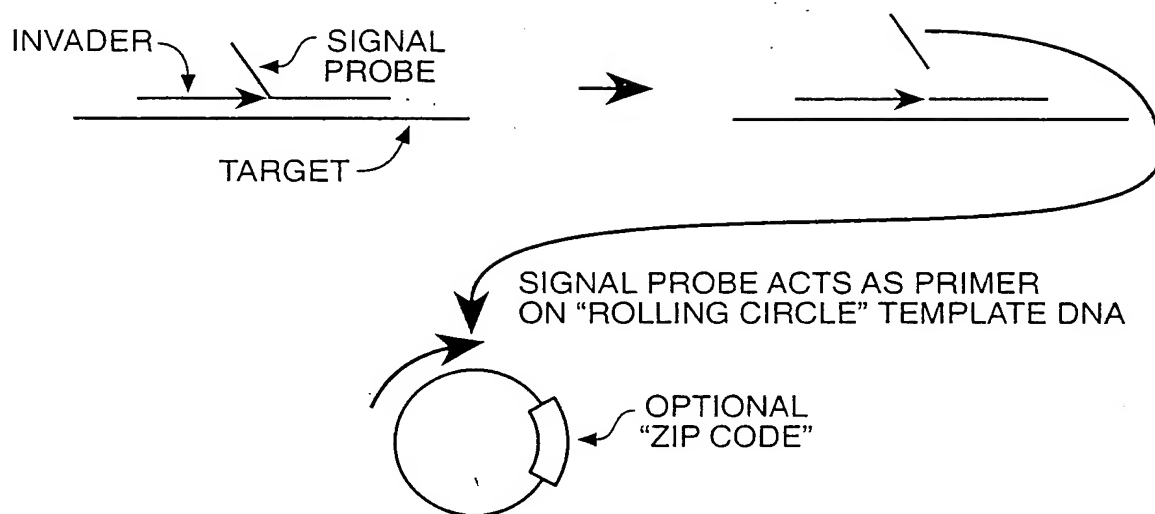
NEWLY SYNTHESIZED TARGET STRANDS ARE DENATURED FROM TEMPLATE AND TRANSFERRED TO PCR REACTION (UNIVERSAL PRIMERS, dNT's, TAQ POLYMERASE) FOR MULTIPLEX PCR. UNIVERSAL PRIMERS ARE LABELLED E.G. WITH BIOTIN.

5) ARRAY HYBRIDIZATION - PCR AMPLICONS CONTAINING ZIPCODES ARE HYBRIDIZED TO ARRAY.

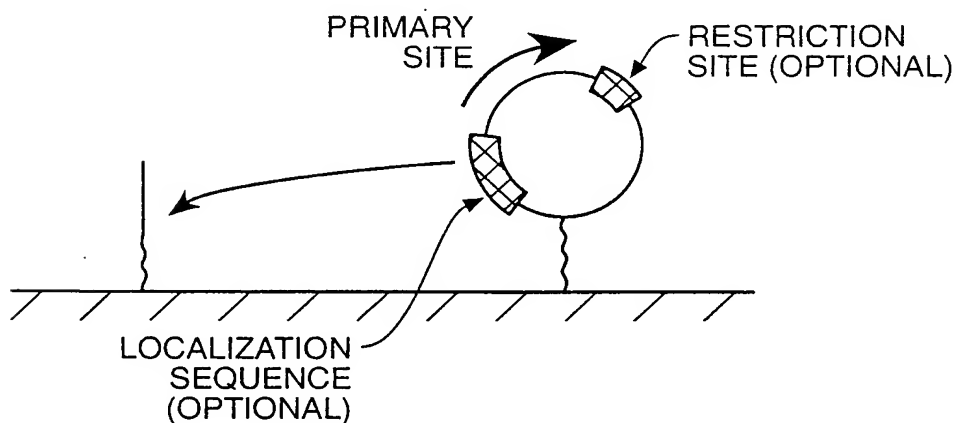
FIG._25

INVADER - ROLLING CIRCLE

1) INVADER REACTION



SOLID PHASE VERSION:



ROLLING CIRCLE TEMPLATE IS TETHERED TO SURFACE E.G. TO LOCALIZED "FEATURES" IN ARRAY FORMAT, OR TO BEADS.

ROLLING CIRCLE PRODUCTS CAN BE LOCALIZED E.G. BY HYBRIDIZATION TO ADJACENT PROBES OR RECOVERED IN LIQUID PHASE FOR HYBRIDIZATION TO A DETECTION ARRAY, E.G. BY ENZYMATIC CLEAVAGE.

FIG._26